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Abstract
Teachers have long been using mobile devices to support their personal learning. Especially during the COVID-pandemic, the professionalization of teachers demanded the use of mobile solutions, which requires them to apply self-regulated learning strategies. This article focuses on mobile self-regulated professional learning of Flemish teachers in primary education. The study examined (1) which profiles in self-regulated learning can be distinguished in a mobile learning environment and (2) whether there is a correlation between mobile self-regulated learning and the willingness to call on mobile learning. An explorative study was conducted by interviewing primary teachers (N=141) by means of an online survey. An explorative factor analysis confirmed that there are ten latent factors, which clustered around eight components (1) self-efficacy, (2) help seeking, (3) task appreciation, (4) goal-setting, (5) self-reflection, (6) strategical planning, (7) concretization and (8) metacognitive strategies. When comparing the subscales to age, a significant positive correlation was found with metacognitive strategies and strategical planning, indicating that older teachers utilized these self-regulatory strategies more than younger participants. In sequence, a latent cluster analysis identified two profiles in mobile self-regulated learning, namely a moderate and high profile in self-regulated learning. Furthermore, a bivariate test with Pearson correlation coefficient confirmed that there is a positive correlation between the overall score of mobile self-regulated learning of teachers and the degree to which they are willing to use mobile learning for their professional learning. More specifically, a correlation was found with the self-regulated learning skills: metacognitive learning strategies, self-reflection, concretization, and goal-setting.

Keywords: Teacher Self-Regulated Learning, Mobile Professional Learning, Professionalization

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Introduction

One of the most important influencing factors for quality teaching is the presence of an effective teacher (Timperley & Alton-Lee, 2008). Professionalization can be defined as the learning process of teachers to improve classroom practice (Avalos, 2011). Teachers are expected to innovate and learn independently (Butler et al., 2004; Peeters et al., 2014; Timperley & Alton-Lee, 2008), which requires them to apply self-regulated learning strategies and skills. Moreover, the presence of teachers' self-regulatory skills has been found to positively influence students' self-regulated learning (Peeters et al., 2014), which in turn supports students' motivation and self-confidence (Vandevelde et al., 2013), increases later participation in lifelong learning (Bandura, 2006) and positively influences their learning outcomes at school (Peeters et al., 2014).

In recent decades, mobile learning environments have made their appearance in various educational settings and sectors, including compulsory education as well as teacher professionalization programmes (Aubusson et al., 2009). Mobile learning tools are accessible to users anytime, anywhere, leading to the increased flexibility of learning (Aarreniemi-Jokipelto & Goulart, 2018). Moreover, mobile learning is associated with greater learner autonomy (Jansen et al., 2017) and can therefore meet teachers' learning and professionalization needs (Elliott, 2017). On the other hand, the learners' autonomy in mobile learning requires the application of self-regulated learning strategies (Vanslambrouck et al., 2019).

Although the core concepts of mobile learning, self-regulated learning and teacher professionalization are interrelated and have several common threads, limited research has been conducted that brings all three concepts together. Within the context of mobile teacher professionalization (see, e.g., Elliott, 2017; Vu et al., 2014) research focuses mostly on promoting the self-regulated learning of students through teachers' professional development, but not on the self-regulated learning of the teachers themselves. In turn, research focusing specifically on teachers' self-regulated learning does not put focus on mobile or online learning environments (Delfino et al., 2010; Peeters et al., 2014). This research explores the relationship between teachers' self-regulated learning on the one hand and the use of mobile learning tools on the other. Thus, it contributes to the further theoretical underpinning of the concept of teachers' mobile self-regulated learning and, within a context of mobile professionalization, allows for adequate support for teachers in this regard (Kim et al., 2019).

Teacher self-regulated learning

Self-regulated learning (SRL) is defined as a complex and voluntary process, in which the learner proactively directs their learning process towards the achievement of a certain goal (Dunn & Rakes, 2015). Within this cyclical learning process, Zimmerman (2002) distinguishes three phases. The *forethought phase* precedes task performance and involves activities related to learner motivation and planning of the task. It then moves on to the *performance phase*, in which the individual self-observes and controls their behaviour to actively improve their learning. Finally, the *self-reflection phase* involves looking back on the learning situation and evaluating the learning progress or outcomes. In general, self-regulated learning starts from autonomous behavioural and emotional regulation (Zimmerman, 2002) and encompasses several domains, namely: metacognition, behaviours, motivation and context (Vanslambrouck et al., 2019).

In terms of teachers' self-regulated learning, Peeters et al. (2014) distinguish (1) the self-regulation of teaching as a response to what occurs in practice and (2) the self-regulation of the teacher's own learning. Teachers who are proficient in self-regulated learning are better able to define meaningful learning experiences and adjust their teaching according to what they have learned (Peeters et al., 2014). Furthermore, they show higher levels of motivation and self-efficacy to engage in learning (Ghonsooly & Ghanizadeh, 2013). Butler (2003) argues that the core purpose of professionalization is to restructure teachers' knowledge by exposing links between theory and practice. Applying self-regulated learning strategies, like reflection-in-action, allows teachers to connect prior learning to practice leading to more meaningful learning (Tillema & Kremer-Hayon, 2002).

Mobile and self-regulated professional learning

Mobile learning supports reflection-in-action (Aubusson et al., 2009) because mobile resources are quickly accessible and allow the user to capture practical experiences efficiently. Aarreniemi-Jokipelto and Goulart (2018) define mobile learning as learning using mobile devices such as laptops, tablets and smartphones (Aarreniemi-Jokipelto & Goulart, 2018; Burden et al., 2019), but it also points to learner mobility (Aarreniemi-Jokipelto & Goulart, 2018; Aubusson et al., 2009, p.234). The use of portable devices offers a way to learn anytime and anywhere (Motiwalla, 2007) and can support and reinforce authentic learning situations (Zydney & Warner, 2016). For example, users can search for information related to something they have just encountered (Hsu & Ching, 2015). Furthermore, the implementation of mobile learning supports teachers' self-regulated learning by offering the possibility for immediate feedback (Hsu, 2015), the personalisation of learning experiences (Wei & Chou, 2020) and it allows concrete experiences to be shared with others, for example by using video recordings and to build on them later (King et al., 2018).

To ensure qualitative online learning, self-regulated learning is considered a prerequisite (Bothma & Monteith, 2004; Inan et al., 2017). Due to the high autonomy of the learner within an online learning context, as it is often less structured than a formal learning environment, the learner needs to apply self-regulated learning strategies (Tseng et al., 2018; Kim et al., 2019; Vanslambrouck et al., 2019). Furthermore, motivational self-regulatory strategies are positively associated with learner engagement (Artino & Stephens, 2009). Being able to self-motivate prevents disengagement in the learning process, leading to higher success rates in online learning environments. Additionally, a positive self-perception of technology use and autonomous learning influence the willingness to learn online, which in turn is an important predictor of achieving intended learning outcomes in online learning (Wei & Chou, 2020).

Measuring teachers' mobile self-regulated learning

As self-regulated learning is proven to be important in mobile learning, different scholars have measured learners' abilities to self-regulate their mobile learning. Vanslambrouck et al. (2019) argue that self-regulated learning can be expressed in both qualitative and quantitative ways. The quantitative interpretation of self-regulated learning assumes that the more learning strategies are used, the higher the self-regulated learning profile. The qualitative interpretation considers the efficiency of strategies as a function of learning outcomes (Vanslambrouck et al., 2019).

Using the Online Self-regulated learning questionnaire (OSLQ) by Barnard et al. (2009), Vanslambrouck et al. (2019) found a distinction between a high, medium and low self-regulated learning profile among adult students in a blended learning environment. According to their findings, students in the high profile score better on time management, whilst students in the low profile need more support from peers or an instructor. In contrast, a study conducted by Barnard-Brak et al. (2010) found five profiles using the same instrument as Vanslambrouck et al. (2019) on a sample of university students. Here, individuals in a first profile scored low on all subscales while the second profile shows individuals who scored high across the board. In addition, Barnard-Brak et al. (2010) found a class that scores relatively high, but not to the same extent as the latter group. The other two profiles score strongly on certain subscales. Whilst one class scores higher on skills linked to the preparatory phase of self-regulated learning (cf. goal-setting and environmental structuring), the latter class scores higher on skills linked to the implementation and reflection phase, namely: help-seeking, self-assessment and task strategies. Though these studies provide useful insights in the mobile self-regulated learning of adult students, neither focuses on non-academic contexts, professionalization or teachers in specific. As mobile self-regulated learning can differ according to context and personal characteristics (Greene & Azevedo, 2007), it is important to study the concept with different target groups.

Aim of the study

This study aimed to examine the self-regulated learning skills of primary teachers using mobile devices to support their professional development. The following research questions were addressed:

1. Which self-regulated learning profiles can be distinguished with Flemish primary teachers that use mobile learning resources to support their professionalization?

2. How does the willingness to use mobile learning resources correlate with the self-regulated learning of Flemish primary teachers in light of their professionalization?
   a. What is the correlation with their self-regulated learning?
   b. What is the correlation with the components of self-regulated learning?
   c. What is the correlation with the observed profiles?

Method

Context, participants, and procedure

Data for this quantitative study were collected from December 2020 until February 2021 using online surveys. A random multistage sample was used for this purpose (Lynn, 2011). In the initial stage, seventeen of the 300 Flemish municipalities were drawn, after which three schools were drawn from each municipality. Using the address lists on the website of the Flemish Ministry of Education and Training (2020), the principals of these schools were contacted to ask them to pass on the survey to the teachers. Because of the low response rate, the respondents were further supplemented with a convenience sample (Alkassim et al., 2016), in which the principal researcher reached out to schools and teachers in her immediate vicinity to complete the survey and pass it on to others. In addition, the survey was shared in Facebook groups of primary school teachers at three different times.

In total, 141 Flemish primary teachers were included in the study of which 119 were ordinary primary school teachers and 22 special education teachers. 16 of them were male and 125 were female. This male-female ratio was representative of the population (±12%; Department of Education and Training, 2020). The mean age of the respondents was 34 years (SD = 11.02) with a range of 21 to 60 years.

Instruments

The survey was constructed in three parts: (1) demographic characteristics, (2) willingness to engage with mobile learning and (3) teachers' self-regulated learning. To operationalize the core concept of mobile learning two questions were developed: (1) how often have you already used these resources and (2) what resources would you ever turn to on your initiative? The instruction here referred to the use of mobile resources as a function of their own professionalization and explicitly not for the benefit of the students. Respondents were presented with a list of mobile resources, where they could answer the question for each resource on a scale ranging from (1) never to (5) daily. To determine the list of mobile resources, an inventory was created by entering the search term 'TI = ("mobile" OR "online") AND ("professional development" OR "teacher education")' into the Web of Science platform. The results were narrowed by category (= educational research) and by publication date (= 2016 to 2020). The search term yielded a total of 141 articles. The titles, keywords and abstracts were then scanned for any reference to mobile learning resources. This enumeration was further supplemented with resources already found in the earlier literature search. The list was then simplified by taking synonyms and highly related resources together. This yielded an inventory of thirteen items: social media, online professional learning communities, online courses, apps, videos, online workshops, online learning materials, online mentoring, e-books, blogs or blogging, e-portfolio, podcasts and educational games.

To survey self-regulated learning the SRLMQ (Littlejohn et al., 2016), a 5-point Likert scale, was adapted and translated to fit the scope of the research. The participants answered 42 questions with a value ranging from (1) not at all true for me to (5) very true for me. To administer this survey to Flemish teachers, the questionnaire was translated into Dutch. Linguistic equivalence (Peña, 2007, p. 1256) was pursued through a simplified version of the back-translation method of Beaton and Guillemin (2000) where two linguists worked together to translate the questionnaire. In the first stage, one of the linguists translated the original English questionnaire into Dutch, after which the translated questionnaire was back-translated by the second linguist. The second linguist who performed the back-translation was not familiar with the original version or with the core concepts of the study. In the final stage, the three versions of the questionnaire (original questionnaire, translation and back-translation) were compared with each other, with discrepancies eliminated in concert. This qualitative validity check led to the approval of the Dutch questionnaire.

As a second qualitative validity check, the online survey was tested by three teachers and modified according to their feedback. The full questionnaire was further discussed and refined in collaboration with the co-authors.

Data analysis

First, the data were fed into SPSS 26 and checked for errors and missing values. An exploratory factor analysis (EFA; Henson & Roberts, 2006; Yong & Pearce, 2013) with a

Varimax rotation was conducted (Yong & Pearce, 2013) to check the 42 translated items regarding self-regulated learning for validity. The components found were then combined into an overall score.

To find out if latent profiles could be identified, a cluster analysis was performed. Because the number of profiles was not known in advance, two hierarchical agglomerative cluster analyses were performed. A k-means cluster analysis was conducted to assign the cases to the appropriate cluster (Landau & Everitt, 2004). To control for heterogeneity, different models were compared using the Akaike information criterion (AIC) and the Bayesian information criterion (BIC), with a smaller value indicating a better fit (Vanslambrouck et al., 2019; Witherspoon et al., 2019). Based on the observation of different profiles, a new variable was created that classifies respondents according to the profile they belong to.

To study teachers' willingness to engage in mobile learning, a second exploratory factor analysis was conducted on the thirteen questionnaire items. The different components were checked for homogeneity (Cronbach's alpha > .60) and then pooled into a score (Gliem & Gliem, 2003). Lastly, a t-test was conducted (Field, 2017) to examine whether the willingness to use mobile resources (test variable) in the context of professionalization was correlated with: (1) the teachers' self-regulated learning profile, (2) their overall self-regulated learning score, and (3) the subcomponents of self-regulated learning (split variables).

Results

Self-regulated learning of primary teachers

To assess teachers' self-regulated learning, an exploratory factor analysis with a Varimax rotation KMO = .84 proved that the sample size was adequate and desirable for factor analysis (Beavers et al., 2019). Bartlett's test of sphericity $X^2(861) = 3094.24$, $p < .001$ showed that the correlations between the items were large enough to perform the EFA (Field, 2017). The results of the factor analysis did not match the original questionnaire. According to the analysis, there are ten latent factors with eigenvalues > 1 (Costello & Osborne, 2005). Together, these explain 65.99% of the variance. Items clustered around the same component showed that eight components were involved (factor loading > .50). Four of those components matched the original questionnaire and were therefore labelled the same: (1) self-efficacy, (2) help-seeking, (3) task appreciation, and (4) goal-setting. A fifth scale contained all items from the self-reflection phase except for one item and was therefore labelled as (5) self-reflection. In labelling the remaining three scales, the similarity of the items was considered which resulted in the following labels: (6) strategic planning; (7) concretization, indicating with learning gains translated into more concrete insights for practice and; (8) metacognitive learning strategies (Pintrich et al., 1991). For each scale, the items were checked for homogeneity using Cronbach's alpha > .60 (Gliem & Gliem, 2003). Table 1 summarizes the means and standard deviations of the variables used. It shows that respondents scored highest on the metacognitive learning strategies subscale ($M = 3.90$; $SD = 0.85$), followed by self-efficacy ($M = 3.69$; $SD = 0.65$) and goal-setting ($M = 3.69$; $SD = 0.77$). However, task appreciation was scored lowest ($M = 3.09$; $SD = 0.69$). Standard deviations were generally small, but the values of help-seeking had the greatest variance and those of concretization the smallest.

	M	*SD*	Cronbach's alfa	range
Self-Regulated Learning	27.98	3.97	.825	8 - 40
Subscales SRL				
Metacognitive strategies	3.90	0.85	.780	1 - 5
Self-Efficacy	3.69	0.65	.788	1 – 5
Setting goals	3.69	0.77	.712	1 – 5
Concretization	3.50	0.69	.801	1 – 5
Help-seeking	3.43	0.66	.894	1 – 5
Strategical planning	3.35	0.82	.730	1 – 5
Self-Reflection	3.29	0.73	.812	1 – 5
Task interest	3.09	0.69	.801	1 – 5

Table 1. Descriptive statistics of used variables and scales of teachers' self-regulated learning *(*N=*141)*

When the subscales of teachers' self-regulated learning were related to age, a moderately significant positive relationship was found with metacognitive learning strategies ($r = .210$; $p < .05$; $N = 141$) and strategic planning ($r = .229$; $p < .01$; $N = 141$). Indicating that the older the respondent, the higher also the use of strategic planning and metacognitive learning strategies.

Profiles in mobile self-regulated learning

To identify the number of subpopulations two agglomerative hierarchical cluster analyses were conducted on the eight scales found in mobile self-regulated learning. It was opted to use the Euclidean distance because interval scales were used (Madhulatha, 2012). Next, the farthest neighbour method (Landau & Everitt, 2004) was used for the first hierarchical analysis. Both the elbow method (Alhussain, 2018) and the between-group linkage method proved a model with two clusters to be the best fit.

Secondly, a k-means cluster analysis was performed to assign the cases to one of the two clusters. Then, as a final control measure, this two-cluster model was compared with a three-to five-cluster model (Table 2). For the Akaike information criterion (AIC) and the Bayesian information criterion (BIC) a lower value indicated a better fit (AIC = 181.49 and BIC = 184.44) (Vanslambrouck et al., 2019; Witherspoon et al., 2019). Whilst for the Log Likelihood a higher value testifies to a better fit (LL = -179.49) (Vanslambrouck et al., 2019; Witherspoon et al., 2019).

	LL	AIC	BIC
2 profiles	-179.49	181.49	184.44
3 profiles	-280.31	284.31	290.21
4 profiles	-371.51	377.15	385.99
5 profiles	-406.17	414.17	425.97

Table 2. Comparative fit parameters for models with clusters varying from 2 to 5

The analysis showed that the two-class model was the most appropriate. It can be concluded from the independent sample t-test that the first profile scored significantly lower on each subscale than profile 2 (Table 3).

	Profile 1 (=average self-regulated learning) (N=47)	Profile 2 (= high self-regulated learning) (N=94)
	M(SD)	M(SD)
Help-seeking	3.41*** (0.86)	4.15*** (0.73)
Concretization	3.16*** (0.54)	3.95*** (0.53)
Task interest	3.00*** (0.65)	4.04*** (0.57)
Self-reflection	2.97*** (0.61)	3.77*** (0.58)
Self-efficacy	2.96*** (0.70)	3.66*** (0.50)
Strategic planning	2.73*** (0.66)	3.57*** (0.60)
Setting goals	2.69*** (0.62)	3.68*** (0.71)
Metacognitive strategies	2.59*** (0.59)	3.34*** (0.61)

*** = $p < .001$

Table 3. *Descriptive statistics of identified profiles in self-regulated learning (Independent sample T-test)*

Correlation with the willingness to use mobile learning resources

A second EFA with Varimax rotation was used to check the validity of the thirteen items regarding the willingness to use the listed mobile learning resources. KMO = .72 demonstrated that the sample size was sufficient to conduct a factor analysis (Beavers et al., 2019). Bartlett's test of sphericity $X^2(78) = 402.452$, $p < .001$ showed that the correlations between the items were large enough to perform the EFA (Field, 2017). The analysis showed that there were four latent factors with eigenvalues > 1 (Costello & Osborne, 2005), which together explained 58.17% of the variance. The items that clustered around the same component showed that three components were involved (factor loading > .50). For each scale, the items were checked for homogeneity (Cronbach's alpha > .60; Gliem & Gliem, 2003). The three variables were then summed to a score ranging from 3 (I would never use this) to 15 (I would use this daily). Table 4 summarizes the means and standard deviations of the variables used.

	M	*SD*	Cronbach's alpha	range
Willingness	7.5	1.55	.603	3 - 15
Component 1	3.44	0.74	.654	1 - 5
Component 2	2.04	0.62	.645	1 - 5
Component 3	2.02	0.70	.503	1 - 5

Table 4. *Descriptive statistics of used variables and scales of willingness to use mobile learning materials*

After conducting a t-test between the degree of willingness and the profiles in self-regulated learning, there was no significant relationship found. However, using a bivariate test with Pearson product-moment correlation coefficient, a weak positive relationship was found between the degree of willingness to use mobile resources and the teacher's overall score in mobile self-regulated learning (r = .169; p < .05; *N*=141). This suggests that the higher the score in self-regulated learning, the higher also the willingness to engage in mobile learning. Furthermore, a weak significant relationship with the scales of metacognitive learning strategies, self-reflection, concretization, and goal-setting (Table 5) was found. For all four scales, the higher the score in self-regulated learning, the higher the voluntary use of mobile learning tools.

Component	*r*
Self-reflection	.192[*]
Concretisation	.186[*]
Metacognitive strategies	.167[*]
Setting goals	.183[*]

[*] = p < .05

Table 5. *Correlations between the willingness to use mobile learning materials and the components in self-regulated learning (Pearson product-moment correlation coefficient)*

Conclusion

Profiles in teachers' mobile self-regulated learning (RQ1)

To address research question one, if and which profiles can be differentiated with teachers in self-regulated mobile learning, it can be concluded that two profiles in mobile self-regulated learning can be defined. The first profile is characterised by teachers who exhibit mobile self-regulated learning to an average degree, whilst the second profile describes teachers who exhibit mobile self-regulated learning to a high degree. Moreover, the score in mobile self-regulated learning is positively related to the willingness to use mobile learning tools.

From the overall score in mobile self-regulated learning, the respondents generally scored average to fairly high on the various self-regulated learning skills. In this regard, they score highest on metacognitive learning strategies, followed by self-efficacy and goal-setting. Moos and Ringdal (2012) argue that metacognitive strategies provide the learner with feedback, which helps them to self-regulate the learning process. This could partly explain the higher use of this skill. Additionally, Sitzmann and Ely (2011) argue that self-efficacy and goal-setting have a strong effect on an individual's learning outcomes. However, task

appreciation scored lowest, while similar motivation strategies would also produce higher performance according to Muwonge et al. (2020).

Correlation with the willingness to use mobile learning resources (RQ2)

The study examined if there is a relationship between primary school teachers' self-regulated learning and their willingness to engage with mobile learning resources. A positive correlation was found between the degree of willingness and the teachers' overall score in mobile self-regulated learning. The higher the score in self-regulated learning, the higher also the willingness to use mobile learning resources. Following Grant's (2019) call for linking research to the seven character traits of mobile learning, it can be said that learner engagement in the use of mobile learning resources is positively related to mobile self-regulated learning. Moreover, there appears to be a correlation with metacognitive learning strategies, self-reflection, concretization and goal-setting. The higher the use of these self-regulated learning skills, the higher the voluntary use of mobile learning tools. However, there appears to be no significant relationship between the level of willingness to use mobile learning tools and the profiles in self-regulated learning.

Finally, the analyses show that the higher the age of the respondents, the lower the willingness to use mobile learning tools. This can be explained by the results of Mirķe et al. (2019), which show that the willingness to use online learning is related to the respondent's self-concept of technology use. According to O'Bannon and Thomas (2014), teachers older than 50 show less mobile self-efficacy than younger teachers in using mobile devices. Furthermore, there is a positive relationship between age and technology stress (Özgür, 2020). In this regard, Philipsen's (2019) research shows that learners' technology engagement is mediated by the individual's digital capital. Lower self-confidence in technology use could be the underlying reason for lower readiness for mobile learning (Mirķe et al., 2019). This is an important side note, as the willingness to learn online shows a significant relationship with online learning outcomes (Wei & Chou, 2020) and higher self-concept determines the quality of self-regulated learning (Broadbent & Fuller-Tyszkiewicz, 2018; Sitzmann & Ely, 2011).

Limitations and future research

Even though this study contributes to the theoretical underpinning of the concept of teachers' mobile self-regulated learning, some limitations must be addressed. The first limitation is that using a questionnaire only provides a snapshot of teachers' professional learning, whereas self-regulated learning is a dynamic concept that can fluctuate and change over time (Severiens et al., 2001). Longitudinal research could better capture this, but this was not possible within the time frame of the current study. Additionally, it is necessary to examine the effect of teachers' mobile self-regulated learning on their classroom practice (Consuegra & Engels, 2016). Complementing quantitative results with qualitative research would provide useful insights that allow the translation of the research into practice (Butler, 2003; Vanslambrouck et al., 2019). Furthermore, it seems interesting to investigate which personal characteristics are correlated with teachers' mobile self-regulated learning and which interventions may have a positive or negative effect on teachers' mobile self-regulated learning.

The second limitation of the study concerns the rather limited sample size. Due to the low response rate, some items did not meet the requirements to be included in the scales (factor loading > .50). Partly for this reason, the exploratory factor analysis revealed fewer scales

than expected, which may be a consequence of the limited sample size. In addition, the distribution of the survey through social media might introduce bias as it is likely that specifically those respondents who were already using mobile learning tools were addressed.

A final limitation relates to the requirement to adapt the questionnaire to fit the target group. The SRLMQ (Littlejohn et al., 2016) was adapted because (1) no validated Dutch questionnaire exists and (2) existing questionnaires focus solely on formal online learning environments such as in the context of MOOCs, whereas the current study included also non-formal ways of mobile learning. Therefore, an exploratory factor analysis was chosen instead of a confirmatory factor analysis (Henson & Roberts, 2006; Yong & Pearce, 2013). To increase the reliability of the survey within the researcher's capabilities, a simplified version of Beaton et al.'s (2000) back-translation method was used, working with two independent translators. In future research, the validation of a Dutch questionnaire that can be applied within different mobile contexts would provide added value. This would allow similar research to be conducted with other Dutch-speaking populations. For instance, this questionnaire could be administered to teachers of other educational levels, as well as to students, pupils and in the business world to gain an insight into their mobile self-regulated learning. A subsequent recommendation is to study the relationship with learning outcomes. A first question here is whether a higher profile also produces more desirable learning outcomes. In the case of teachers, this could be related to the effect on student learning outcomes (see, e.g., Sancar et al., 2021). Thereby, the results of Peeters et al. (2014), which showed that teachers' self-regulated learning determines their students' self-regulated learning, could also be tested against teachers' mobile self-regulated learning.

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Exploration of Native Speaker Teachers and Non-native Speaker Teachers Within the English Learning Communication

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Abstract

The present research zeros down to the unending and much-debated topic of native speaker teachers (NST) and non-native speaker teachers (NNST). Nonetheless, this critical debate has always revolved around English language teaching (ELT) and fails to look at the different attitudes and preferences between the two sets of teachers in the ETL frameworks and how that impacts students' understanding; an area this paper attempts to explore. The study administered questionnaires to extract an understanding of perceptions of the influence of NS/NNS teachers at Japanese universities. The population to whom the questionnaires were administered encompassed students enrolled in English communication courses. The findings are enlightening; although a clearer student preference for NS teachers in language lessons was evident, students' attitude is ambiguous and not explicit. Instead, variant themes are seen, including conflicting expectations from teachers by students, optimistic attitudes towards a blend of NS/NNS teachers, and the connection between language learning goals and NS/NNS teacher combination. The results are that a blend of NS and NNS teachers' best suits students' learning needs.

Keywords: Native English Speaking Teacher, Non-native English Speaking Teacher, English Language Education, Students' Preferences

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Introduction

When English communication language was introduced as an international language and started being taught, the issue of non-native speakers as teachers sparked a controversial debate. This debate of the Native Speakers Teachers (NSTs) and Non-native Speakers Teachers' (NNSTs) preferences and attitudes has generated arguments and many controversies. This issue cannot be ignored since the current reforms in the education sectors are championing multilingualism, multiculturalism, diversity, and the aim of attaining bilingualism in the English course. A series of research has been conducted on the issue of native speakers and non-native speakers on definition, their differences, and the issue supporting and going against each aspect. Much of the research and study has been on emphasizing non-native speaker teachers' visibility, making their voices more audible in the professional sphere, and exploring their strengths in the English learning course. This research proposal aims to explore the core debate regarding native speakers and non-native speakers, focusing on students' preferences and attitudes in Japanese university.

Literature review

The debate between native and non-native English teachers is as old as the notion of teacher identity. According to Li and Jin (2020, p.1099) "In the history, there have been preferences for NESTs and NNESTs respectively." Also, Walkinshaw and Oanh (2014) researched Japan and Vietnam on assumptions accrued to native English speakers' teachers as the written language's gold standard (Walkinshaw & Oanh, 2014). In these assumptions, non-native English speaker teachers are inferior educators lacking essential innate linguistic skills. Besides, their article explored the advantages and disadvantages of learning English courses from NEST and NNEST. This study had a perceived assumption on pronunciation, correct language, and repositories of cultural knowledge. However, the study found that NEST had some poor grammar explanations and tension in their cultures. The article further found that NNEST had an excellent perception of restoring students' first language, were good grammar teachers, and students found the interaction between them and NNEST excellent due to shared culture. However, NNEST had inferiority in pronunciation. They have more accessible in comprehending. According to Daftari (2017), the linguistic insecurity of speakers of a language is mostly related to their pronunciation, in the case of non-native teacher's it is referred to as the feeling of insecurity when teaching grammar, vocabulary and pronunciation.

The term, 'native' was constructed by Davies (2004) as the language of childhood acquisition, language production, and comprehension of idiomatic, competent comprehension, fluently, and spontaneous discourse (Davies, 2004). Besides, according to Walkinshaw and Oanh (2014), native speakers are influenced by several factors that enable them to comprehend the language fluently. These factors are age, occupation, geography, social status, and the standard forms of English. Also, since English is the primary language used worldwide as a second/foreign language, it is more widely used as a bridge language. Besides, (Wang 2012) found that native speakers are the prominent teachers of the English language course, and they continue to dominate the English language teaching profession (Wang, 2012). This assumption leads to non-native teachers lacking job opportunities in teaching English courses. According to research conducted by Clark and Paran (2007) on UK higher education institutions, 72.3% of the employers would hire employees with a native accent (Clark & Paran's 2007). Mahboob (2003) examined the hiring practices of 118 adult

ESL program directors and administrators in the US. He found that the number of NNESTs teaching ESL in the United States is low and disproportionate to the high number of NNES graduate students that are enrolled in MA TESOL programs. He also found that 59.8% of the program administrators who responded to his survey used the "native speaker" criterion as their major decisive factor in the hiring process of ESL teachers. A reason for this discrimination was that administrators believed only NESTs could be proficient in English and qualified teachers. The biasing of the teachers based on native language reduced motivation for non-native teachers, and a survey conducted by Seidlhofer (1996) indicated that more than 57% of non-native English teachers feel insecure and unconfident while in the classroom.

Research conducted by Cheung and Braine (2007) on the Asian English learner towards NNEST found a favorable attitude towards the NNST, and their perceived effectiveness matched NEST. Besides, NNEST classes were termed as friendlier and less stressful. More study on the perception of the NNEST and NEST by learners showed that many students preferred NNEST as their English language educators, and the students have a more positive feeling towards the NNEST. Many studies on the issue of NEST and NNEST perceptions in Japanese universities have focused on the teacher's perception rather than students' perceptions. On this note, a study conducted by Butler (2007) on high school teachers' perception about an English assistant who was NNEST revealed that junior high school teachers had a more positive perception of these assistants than the senior high school teachers (NEST) (Butler, 2007). Besides, in her report, Butler found that many believed that NNEST were good educators for the elementary classes, and they taught English better than NEST's.

Árva and Medgyes (2000) investigated the diverse traits between NNEST and NEST and found that both teachers are qualified as English teachers but have different teaching behaviors. The difference in teaching behavior resulted from their differences in linguistic competencies. Of all the differences accrued to these teachers, NEST had poor knowledge of grammar. This pitfall was the advantage of the NNEST as their skills are generated from in-depth studies and the capability to provide a scientific explanation of English language construction and use. According to Madrid (2004), the most prominent advantage of NEST is their superior linguistic and communication competence since English is their mother tongue and first language. Therefore, the NEST can use the language with greater spontaneity and naturalness compared to the NNEST, who acquired the language through studies. According to Madrid (2004), NNESTs prepare for their English classes more professionally and meticulously, following the textbook faithfully and sticking to what the course outline dictates.

Meadows and Muramatsu conducted a survey to investigate the student perception of NEST and NNEST and found that NNEST teachers help students acquire an achievable learning model. Besides, in their article, they second the idea of NNEST having metalinguistic knowledge of the English language due to its studies and affirmed that NNEST is viewed as inferior because of their lack of native-ness (Meadows & Muramatsu, 2007). Their article defined that the English language is highly influential to multiculturalism on the education perception. More so, they narrated that the issue about NEST and NNEST started in 1961 at Makerere University in Uganda and identified that the most cited publication on the issues was the "native speaker fallacy" by Phillipson in 1992. There are many scholars like Robert

Phillipson challenging the myth of native speakers, putting forward "the native speaker fallacy" that is against the dominance of native speakers in teaching English.

In contrast, NEST had positive confidence in their teaching techniques based on their naturalness of language ability. Perception later shifted to administrative, where employees preferred hiring NEST for their English courses. Now, the shift is on the student perception where many students, especially international students, prefer NEST to teach them English courses.

The perception created in English course teaching has influenced many studies on the formed social inequality. English language teaching and the issue presented regarding NEST and NNEST stems from the hegemonic status of the English language worldwide. Therefore, Meadow's and Muramatsu's focus shifted to other foreign languages that have native speakers and non-native speakers teaching them. Despite focusing their attention on other foreign languages, the results were similar to most EFL studies (high students' preferences of NEST teaching the native language). According to an interview conducted by Nathan Croker to a NNEST in Japanese schools (Adina Nicolaiciuc), he found that teaching as NNEST is advantageous since one has a deeper understanding of the struggle students are likely to experience while learning a foreign language. Hence, they are keen to explain the language construction, grammar, and idioms ("Teaching English in Japan – Non-Native Speaker | Write Teach Japan," 2022). Besides, it is very likely for NNEST to engage their students in language similarities and comparisons with their students and other teachers. According to the interview, NNEST can use language teaching approaches to explain concepts to a student by understanding the complexities involved.

NNEST are pressured to prove their capabilities to clear the notion created in most Japanese universities of the perfection of NEST over NNEST. However, some students were indifferent as long as they learned the language; they were satisfied with the NNES teacher. Nevertheless, NEST is employed on the basis that they can speak English fluently and not because they outdo the NNEST in terms of teaching competencies. Therefore, the administration ends up having teachers with good language skills but poor teaching skills (Braine, 1999). One major disadvantage of NEST is the lack of attainable goals and intimidation of the students, making them feel they are not making progress or enough effort to attain the set goal. Christen (2008) found that NEST is not strict on learners when they make mistakes. NNEST take advantage of their native language to explain to students who may understand the native language (L1). Also, NNEST are likely to supply their students with more information about the target language.

Methodology

This research is based on both qualitative and quantitative research methods. The qualitative research method involves collecting and analyzing non-numerical data to understand the research question. In this case, the research question is the attitude and preferences between NEST and NNEST in the English learning teaching frameworks and their impact on students' understanding of the English language. Therefore, the literature review is a fundamental method in this research. Articles relating to NEST and NNEST will be reviewed to determine the current existing reports on the issue. The primary data collection method is through survey given to 93 students from one Japanese university. These students shall be categorized into two groups according to their year of studies (first year and second year).

The quantitative research method involves collecting and analyzing numerical data. There were 54 females, 37 males, and 2 more students with other gender identities involved. 95.7% of the respondents spoke Japanese as their mother tongue (L1). The questionnaire was distributed among all the 93 respondents, and they were to answer to their best level, and honestly. The questionnaire asked 31 questions.

Data collection

The data collection instrument is the self-test questionnaire (Appendex-A) for English learners in Japanese university. The questionnaire was designed to collect quantitative data. It was based on two studies: 1) *University Students' Perceptions of Native and Non-native Speaker Teachers of English* (Lasagabaster & Sierra, 2002), and 2) *Native Speaker/Non-Native Speaker Teachers: Beyond the Learners` Gap,* (Sekigawa, Sugino, Okayama & Ascough, 2003). The researcher adapted the 2 surveys to suit the context of her research.

This method is essential as it allows for data to be collected in a readily processable form. The questions in the forms were attitudinal, eliciting students' attitudes towards NEST and NNEST in the EFL environment. An open-format guide will be used to implore the general perception since it is not feasible to anticipate themes that may accrue, as a closed format guide could not provide pre-prepared feedback categories. Since this is investigative research rather than experimental, the respondents will be asked several questions for accuracy. As the correspondents are first- and second-year students with knowledge of the English language, translations shall not be provided. The questions in the form are close ended, removing grammatical errors, preserving the collected data. The study was performed within a mandatory four-skills English course. Participation was fully voluntary, and students were advised that collected data would be kept confidential, and participation would have no bearing on course grades.

Limitations

There are several limitations of this study. The first limitation to this research was gender imbalance, as the majority of the respondents were females. The second drawback of this study was the participation size. While the insights acquired are valuable, the study might benefit from a larger study size. In addition, data were collected from a single survey conducted in the middle of the second semester, so a study conducted over a longer period of time, and with regular surveys, may have produced different results. Finally, all survey questions were written in English, prompting students to submit their answers in English. Had students been provided with a questionnaire that offered Japanese translations, not only would it ensure that participants fully understood the intent and meaning of the question, but it may have encouraged participants to provide more thorough responses.

Results and discussion

After collecting data, it was found that the majority of the respondents had been learning the English language for more than six years (72.1%). Besides, 85 of the respondents affirmed to have had a native speaker as their English teacher. Also, it was found that the majority of the students believed that a native English speaker is somebody who comes from a country where English is the official language. The assumption could result in data bias since the official language might not be the mother tongue. It might be the second language, meaning English

is not their native language to that speaker. A significant number believed a native English speaker is someone from either UK, USA, Canada, Australia, or Ireland.

The majority of students perceive it as crucial to have a native English speaker as their English teacher. This attitude and preference are constructed under the attitude of native speakers making the best language teachers without considering teaching behavior and skills. Although, 36% of students do not have a preference. The data collected further indicated that the majority of the students' attitude on pronunciation was influenced by native speakers being their teacher. Also, the students believed that speaking fluent English was very influential by a native speaker being their teacher. There was a slight variation on how important it was in general vocabulary to have a native speaker as an English teacher, where the majority believed it was essential. In contrast, a significant number (35%) believed it did not matter either way. Also, on the issue of slang, there was a varied attitude, with the majority believing it was essential to have a native speaker as the teacher while (11%) students believed it did not matter.

The question on how important it was in grammar to have a native teacher as the English teacher can be thought to form the thesis of this research since it resulted in a wide variety of responses. Listening skills were intensely expressed when the teacher was a native speaker, with 71% of students firmly believing it. 46% of students believed their grammar could be influenced when the teacher is a native English speaker, while 44% of students believed it is not essential for the teacher to be a native English speaker or non-native. Also, there was a divergent attitude on the influence of native speakers and non-native speakers on students' writing and their reading skills. 57% of respondents believed it was essential to have a patient and tolerant teacher.

In comparison, 62% believed it is essential to have a teacher knowledgeable about the English language. 80% of the respondents believed and preferred a helpful and kind teacher regardless of whether they are native or non-native speakers. There was a divergent attitude on the importance of teachers' experience, although the majority favored an experienced teacher. Ironically, there was also divergence on the essentiality of qualified teachers. Although the majority support for a teacher to be qualified, a significant number did not mind. Enthusiasm and passion are other characteristics that students had a divergent attitude about.

82% of the respondents believed that a native speaker teacher could better understand why English is difficult. The native teacher being kinder and more supportive also had a diverse response, although the majority supported them. On the issue of grammar, native and non-native speakers as teachers had almost the same response. The majority of students do not feel embarrassed when a native speaker openly condemns their mistakes. 84% of the respondent wanted to learn English at a native speaker level. There were diverse responses on the feasibility of learning English as a second language to a native speaker.

Recommendations

With results of this study in mind, the research proposed the following recommendations. It is important to encourage collaboration between NESTs and NNESTs. Team teaching approach in which a NEST and a NNEST share the same class develops not only cross-cultural awareness but boosts also the motivation and the confidence of the NNESTSs. They could

also leverage their unique abilities respectively in Japanese education system. The two also different types of teachers could complement each other, but they could not be replaced by each other completely.

The study recommends further research on the effect of gender on influencing students' attitudes towards their NESTs and NNESTs and doing research on larger sample sizes. Additionally, more research is needed to find if any difference, in low and high proficient students' perceptions concerning NESTs and NESTs.

Conclusion

The aim of this study was to investigate students` perceptions of English as a foreign language (EFL) of their NEST and NNESTs. Barry (2016, p. 208) quotes McKenzie (2013) who suggests that language attitudes towards non-native speakers of English may be changing because of the remarkable growth of global non-native varieties of English. However, this may not yet be applicable to the EFL industry within Japan. The majority of Japanese university students that were questioned prefer to be taught English courses by native English speakers. The reason was based on the perception created of native speakers being good teachers, and many did not consider skills, experience, and competence. However, it is important to state that the majority of the respondents had a positive image of non-native speaker English teachers. Therefore, the point is that both are able to be good English language teachers in their own terms.

Appendix-A

Questionnaire

Part A: Background Information

1. Academic Year
   a. First-Year
   b. Second-Year

2. Your Gender
   a. Female
   b. Male
   c. Other

3. What is your mother tongue (L1)?
   a. Japanese
   b. English
   c. Spanish
   d. Portuguese
   e. Korean
   f. Chinese
   g. Other

4. How long have you been learning English?
   a. 4-5 years
   b. 6-7
   c. More than 8 years

5. University Major
   a. EIBEI
   b. English Communication

   Learner Questionnaire

6. Have you ever had a native speaker of English as a teacher?
   a. Yes
   b. No

7. For me, a 'native speaker' teacher is somebody, who...
   a. is from a country where the official language is English.
   b. has at least one parent whose mother tongue is English.
   c. has lived at least 5 years in an English speaking country.
   d. was born in the UK, US, Canada, Australia, Ireland etc.
   e. Other (please specify):

8. How important is it for you to have a native speaker as your teacher?
   a. Very important
   b. Neither very important nor important
   c. Not important

9. How important is it for your pronunciation for you to have a native speaker as your teacher?
    a. Very important
    b. Neither very important nor important
    c. Not important

10. How important for speaking is it to have a native speaker as your teacher?
    a. Very important
    b. Neither very important nor important
    c. Not important

11. How important for general vocabulary is it to have a native speaker as your teacher?
    a. Very important
    b. Neither very important nor important
    c. Not important

12. How important for learning slang is it to have a native speaker as your teacher?
    a. Very important
    b. Neither very important nor important
    c. Not important

13. How important for listening is it to have a native speaker as your teacher?
    a. Very important
    b. Neither very important nor important
    c. Not important

14. How important for grammar is it to have a native speaker as your teacher?
    a. Very important
    b. Neither very important nor important
    c. Not important

15. How important for writing is it to have a native speaker as your teacher?
    a. Very important
    b. Neither very important nor important
    c. Not important

16. How important for reading is it to have a native speaker as your teacher?
    a. Very important
    b. Neither very important nor important
    c. Not important

17. How important is having a teacher who is patient and tolerant? (Regardless of native/non-native status).
    a. Very important
    b. Neither very important nor important
    c. Not important

18. How important is having a teacher who is knowledgeable about language? (Regardless of native/non-native status).
    a. Very important
    b. Neither very important nor important
    c. Not important

19. How important is having a teacher who is helpful and kind? (Regardless of native/non-native status).
    a. Very important
    b. Neither very important nor important
    c. Not important

20. How important is having a teacher who is experienced? (Regardless of native/non-native status).
    a. Very important
    b. Neither very important nor important
    c. Not important

21. How important is having a teacher who is qualified? (Regardless of native/non-native status).
    a. Very important
    b. Neither very important nor important
    c. Not important

22. How important is having a teacher who is passionate and enthusiastic? (Regardless of native/non-native status).
    a. Very important
    b. Neither very important nor important
    c. Not important

23. Compared to a non-native speaker a native speaker teacher can understand why English is difficult better.
    a. Definitely
    b. Maybe
    c. Definitely not

24. Compared to a non-native speaker a native speaker teacher is kinder and more supportive.
    a. Definitely
    b. Maybe
    c. Definitely not

25. Compared to a non-native speaker a native speaker teacher can explain English grammar more clearly.
    a. Definitely
    b. Maybe
    c. Definitely not

26. Do you feel embarrassed when a Native Speaker/teacher points out your mistakes?
    a. Definitely
    b. Maybe
    c. Definitely not

27. Do you want to learn English to a native speaker level?
    a. Definitely
    b. Maybe
    c. Definitely not

Your Goals

28. Is it possible to learn a foreign/second language to a native speaker level?
    a. Definitely
    b. Maybe
    c. Definitely not

29. What image do you have of a language teacher who is not a native speaker of English?

30. I prefer to be taught by................ because…………………………………………

31. Do you have any comments?

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E-learning Meets Educational Key Opinion Leaders (Edu-KOLs): A Close-Up Look on Exuberant Platforms and Their Success Ingredients

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Abstract
The teaching medium, which had witnessed stillness without significant changes for almost 40 years, has been undergoing a digital transformation in the last decade and is now being remarkably amplified by Educational Key Opinion Leaders (Edu-KOLs). Constructivism inspired collaborative and interactive learning has been further embedded into e-learning platforms amid the recent pandemic. This paper prominently presents insights from our online survey, which was participated by 186 parents in China and has children who are studying or have recently studied online. The project aims to investigate the relationship between learners' perceived outcomes, motivation and the choice of Edu-KOLs. By applying the Partial Least Squares Structural Equation Modeling (PLS-SEM) method, six proposed hypotheses with the distinctive characteristic of Edu-KOL defined therein were validated and investigated. This research has verified that e-learning platforms, student engagement scores and perceived outcomes strongly correlate with the perception of Edu-KOLs. In contrast, parents' educational level or occupational choices have a more negligible effect on Edu-KOLs. This work has also identified positive correlations between Edu-KOLs and customer advocacy and future purchase motivation, which supports our initial hypothesis. Future research will be carried out on Edu-KOLs' influence on adult learners.

Keywords: Education, Perceived Learning Outcome, MOOC, Influencer, E-learning, Edu-KOL

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Introduction

Observing the ever-growing popularity of online education platforms, this paper draws attention to the truly influential power of the Edu-KOLs (Zhang et al., 2021) and their ability in empowering the impacts to not only engage and provide knowledge to children but also provide new forms of literacy parity penetrating through online classes regardless of parents' background and working experiences.

The one-way, in-class learning with only educators passing on content carrying knowledge points across different subjects is widely adopted by most of the world population before the COVID-19 pandemic. However, in both learning offline and online, two-way interaction is essential in all types of education (Moore & G. Kearsley, 2012).

The rest of the paper is organised as follows. Section II explains the research background. Then Section III layouts the research methodology and proposed hypotheses. After that, Section IV reveals the data analysis, followed by the discussion of findings and future research in Section V and Section VI, respectively. Final, Section VII concludes this paper.

Background

An 'Edu-KOL' refers to a brand ambassador or an instructor of an online learning platform or mobile app who is a domain expert in his/her respective knowledge fields and has public recognition, followers, and even a celebrity-like status (Zhang et al., 2021).

Figure 1: Salman Khan, founder of the MOOC platform Khan Academy
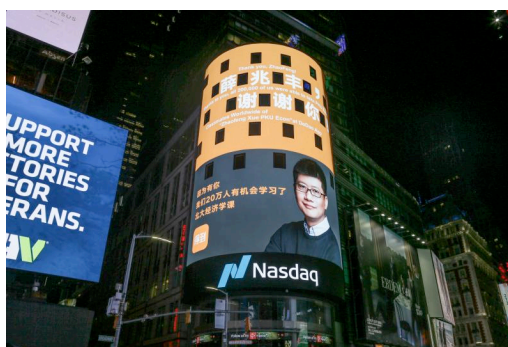
Figure 2: Zhaofeng Xue appeared on this billboard-size screen at Times Square in New York (Source: China Daily, 2017)

Examples of Edu-KOLs include Salman Khan (Figure 1), Andrew Ng, the co-founder of Coursera and Zhaofeng Xue, a Chinese economist and former professor at Peking University, China. His fee-charging course on DeDao[1] App (a Chinese learning app) is the largest economics course in the world, with over 200,000 paid subscribers with the celebration in Figure 2.

Among the growing number of Edu-KOLs rising on different online learning platforms, their creativity in curating the most engaging and effective online interaction also shined through. A Canadian researcher Stephen Pallen used the gaming live-streaming platform – Twitch, to teach programming in a real-time setting (Figure 3). The viewership since six years ago is more than 17, 000 and still counting, demonstrating agility in both programming and teaching format consideration.
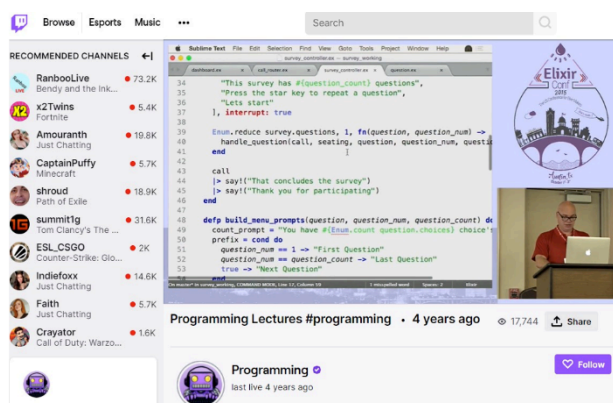
Figure 3: Programming on Twitch (Source: Twitch, 2015)

One of the key attributes shared by all of them is the ability to create new content, either as original creation or remix from past or existing materials resulting in new or even surprising education material for first-time viewers. Content types are further divided by the corresponding creators. In the social selling context, professionally generated content (PGC) (Song et al., 2019) could be videos that are professionally shot and edited by agencies, for which the brand ambassadors or KOLs are starting to explore. The creator community includes all types of creators, and they have laid the foundation for the evolved User-generated Content (UGC) and more specialized Occupationally-generated Content (OGC) (Zhao et al., 2017), where Edu-KOLs exist (Figure 4). The Edu-KOLs are one type of the major OGC contributors, who might be highly influential educators in the top universities such as academic professors or industry experts in different domains.
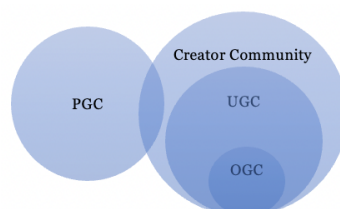
Figure 4: Relationships among different content-generating type

In recent research (Zhang et al., 2021), empirical evidence has been found on the education digitalisation and paid knowledge model with the emergence of Edu-KOLs. We summarised

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[1] https://www.dedao.cn/

the initial findings from the literature review for three different online learning environments and they were examined from the perspectives of audience type, subjects offered, the format of content, teaching method and learning mood of students. It has been observed that users tend to choose courses delivered by lecturers with many followers and high recognition among open online communities (Zhao et al., 2018).

	Institutional Platform	*MOOC Platform*	*Paid knowledge Platform*
Examples	edX, MIT	Coursera, Udemy, Udacity	Zhihu Live, DeDao App, Xueersi App
Audience	Students	Paid students	Registered users
Subject	Syllabus subjects	K-12, higher education, micro credentials	Formal educational subjects, life hacks, random knowledge
Format	PGC	PGC, UGC	OGC
Teaching method	One-way	One-way Express	Both-ways Interactive
Learning mood	School sessions	Self-paced, mostly individual	Live interaction, peer learning, collective

Table 1: Characteristics of virtual learning environment

To serve the purpose of analysing different virtual learning platforms across different cultures in a broad context, it is critical to consider (1) the popularity of a virtual learning platform in that particular cultural context, (2) the history of how those platforms evolved from the single point of traditional in-class pedagogy to the online format, and (3) the distinctive characteristics of the chosen platforms that ride the waves of pedagogy digitalisation with Edu-KOLs. With all these factors considered, we chose China to start this study.

Thinking of e-commerce, China overtook America by market size in 2013 (Zhang et al., 2020), with current market size of $2 trillion, more than the combination of America's and Europe's. A new digital China is fuelled by a slack of the most valuable technology titans, like Alibaba and ByteDance, just to name a few. They empowered not only online retail but also online education among many digitalised categories. Silicon Valley has known for its venture capital activities, start-ups, and technology companies, whereas China now had inevitably changed over its perception from just 'made in China' to 'created in China'. Creator-centric trends not only dominated Chinese Tech Giant's central stage on e-commerce sites such as Taobao and Pinduoduo, but also made their debut on paid knowledge and education platforms, including Zhihu Live, Apps like DeDao, Xueersi, Yuanfudao, and dozens more.

Numerous researches (Lou & Yuan, 2019; Long & Tefertiller, 2020; Zhang et al., 2019) have been carried out surrounding KOLs' definition, characteristics, and business value blooming on the social selling networks on the frontier of the e-commerce platforms such as above mentioned Taobao or Pinduoduo. A group of scholars built a feature-based Expertise, Novelty, Influence, and Activity (ENIA) framework with a mixed research method to effectively identify the opinion leaders (Li et al., 2013) in the online learning communities. However, that work didn't take into consideration of the posting forwarding data, which may, along with

'likes' and rating reviews, serve as the basis of recommendation mechanisms for KOLs to be promoted to similar audiences by the current users of the network.

Key drivers for the consumption of paid knowledge products are review scores and interactions between KOLs and live participants, which have been identified by researchers as the most significant effects on monetization among other features including price, duration, material attachments, and so on (Abrahim et al., 2019; Liu et al., 2011). Those on-field findings put on practical lens towards how effective the Edu-KOL is in driving satisfaction and outcome of live courses. The following section will propose a set of hypotheses to address the research gaps identified through the literature review, where we thoroughly investigated the influence power and characteristics of Edu-KOLs and their perceived effectiveness from parents.

Research methodology and design

Research Hypotheses

Based on the theoretical interpretation of the past literature, this study proposes the following key hypotheses (Figure 5) to be tested and analysed:
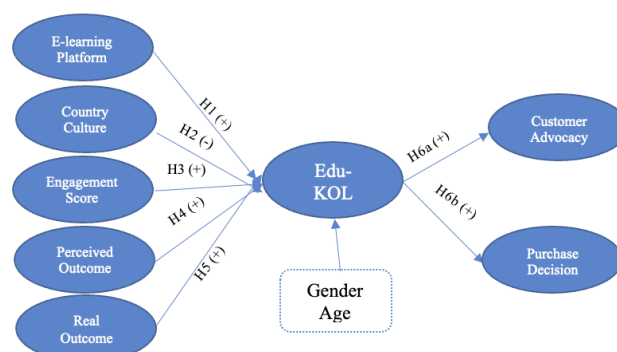
Figure 5: Illustration of the proposed research model

H1. E-learning platform has a positive influence on Edu-KOL.
H2. Country-specific culture has a negative effect on the perception of Edu-KOL.
H3. Learners' engagement can positively reflect on Edu-KOL.
H4. The perceived outcome can positively influence the satisfaction towards Edu-KOL.
H5. The real learning outcome can positively influence the satisfaction towards Edu-KOL.
H6a. Edu-KOL has a positive effect on customer advocacy.
H6b. Edu-KOL has a positive influence on the future customer purchase decision.

Study Design

As the nature of the study is to examine the effectiveness of Edu-KOLs in the online learning environment, it is vital to ensure that the selection of survey participants better covers the major audience for online learning.

Research by HolonIQ[2] indicates that the spending on online degrees was $36 billion in 2019, with the forecast to triple the figure by 2025. Many online courses are taken by two types of

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[2] Holoniq.com. 2021. [online] Available at: <https://www.holoniq.com/markets/higher-education/global-online-degree-and-micro-credential-market-to-reach-117b-by-2025/> [Accessed 23 December 2021].

students, namely children who are in the K-12 education progression and adult learners who study for career progression or interests off-work. In this study, we concentrate on Chinese parents whose children have taken online learning in the past or recently. Given the heated trend and hyper-growth of e-learning platforms boomed in China, it is the ideal testing site for the research purpose.

Data collection

Based on our research scope and research model, an online questionnaire was implemented which was approved by the Human Research Ethics Committee of the University of Wollongong (approval number HREC 2021/299) before it was made public to Chinese audiences via advertising through WeChat, the most popular and frequently used social media app in China during the 'golden week' period[3]. In total, 186 parents participated, out of which 156 were valid submissions. Respondents who are outside the selection criteria or submitted incomplete survey results were excluded[4].

Data analysis

General Observation from Participants

The proposed data analysis method is PLS-SEM given that (1) there are more than 100 valid responses to estimate SEM, (2) the structural model is complex and includes many constructs, indicators and model relationships as shown in the research model (Figure 5), and (3) this research requires latent variable scores for follow-up analysis.

Based on the summarised demographic profile of the respondents and their weekly usage of e-learning platforms, the results indicate the number of mothers who participated in the survey nearly doubled the number of fathers. A total of 61.54% of respondents are within 26 to 35 years old, followed by 30.13% within 36 to 45 years old. Over half of the participants have a bachelor's degree or above, which indicates a high educational level among parents. Participants' occupations spread across various career types and categories. Among the most used and popular 17 Chinese and 10 overseas MOOC platforms, 40.38% of parents used or heard of 1 to 2 Chinese platforms whereas 88.47% used or heard of 1 to 2 overseas platforms. 44.87% of them are familiar with 3 to 5 Chinese platforms whereas less than 11% know about more than 3 overseas platforms.

Measurement Model Validation Assessment

In this section, we present the theoretical consideration and statistical analysis to reveal the validity and reliability of the chosen measurement model. As shown in Figure 5, the research model consists of seven latent variables, which are multifaceted and difficult to capture through a single observed variable. Thus, as shown in Table 2, by identifying and using multiple observed items we achieve the goal for better validity and analysis of the proposed research model.

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[3] The 1st to 7th October 2021 in China, is a 7-day national holidays during which most people are finally off work to rest or travel.
[4] Survey link: https://uow.au1.qualtrics.com/jfe/form/SV_7NYM9bs2PvTRK2G

Construct	*Description*	*Factor loading*
A1	Parents' willingness to recommend to others	1
B1	Participants' gender	1
B2	Participants' age	1
C1**	Participants' education level	dropped
C2	Participants' occupation	1
ES1**	Average hours weekly spent learning online	dropped
CC1	Edu-KOL's influence on online course choices	0.849
E1*	Type of platforms – internal learning system	0.51
E2, E3, E6**	MOOC, Micro credential/certificate	dropped
E4	subject-specific course	0.733
ES2	Comfortable interacting with Edu-KOL	0.751
K1	Edu-KOL's knowledge level	0.863
O1	Satisfaction on the learning outcome	0.91
O2	Satisfaction on Edu-KOL's teaching method	0.892
O3	Satisfaction on Edu-KOL	1
O4*	Satisfaction on perceived outcome	0.625
P	Satisfaction on pricing	0.843
PD1	Willing to purchase courses because of Edu-KOL	0.759
Age	Moderating effect of age	1.034
Gender	Moderating effect of gender	0.962
RO1	Children's final score – real outcome	0.732

**factor loading<0.708 hence dropped, *factor loading close to 0.708 hence kept for further analysis

Table 2: Measurement constructs and reliability via factor loading analysis

We first performed the examination on the indicator loadings of the reflective measurement model. According to Hair et al. (2019), loadings above 0.708 are recommended, which means the construct represented more than 50 per cent of the indicator's variance. Factor loading lower than 0.708 is dropped from the model, as shown in the table above. However, E1's factor loading is 0.51 and O4 is 0.625, considering they are closer to 0.708 thus retained for further analysis. This formed the baseline analysis of acceptable items. We then further evaluated the data divergence validity and reliability and confirmed the model is valid for this research purpose.
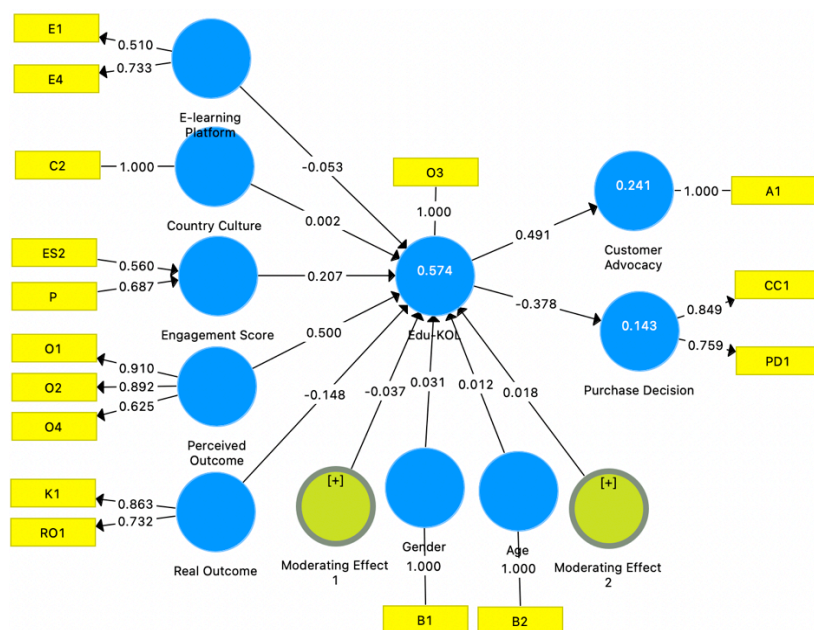
*p <0.05, **p < 0.01

Figure 6: The PLS-SEM model

Discussion

In the questionnaire, a 10-point Likert scale was deployed, where the point '10' represents strong agreement or positive sentiment with the statement, and consequently '1' represents strong disagreement or not even been considered. As detailed in the previous section, we first tested the PLS-SEM model to be valid, robust and statistically significant to provide insights into Edu-KOLs. Table 3 shows that five out of six hypotheses were supported in this study. This sets a crucial step forward to understanding the role that the Edu-KOLs play in the online learning environment.

Hypothesis	Std coefficient	Outcome
Hi1: E-learning Platform -> Edu-KOL	0.90	Supported
H2: Culture ->Edu-KOL	0.03*	Not supported
H3: Engagement scores ->Edu-KOL	2.42	Supported
H4: Perceived outcome->Edu-KOL	6.10	Supported
H5: Real outcome ->Edu-KOL	2.35	Supported
H6a: Edu-KOL->Customer advocacy	8.26	Supported
H6b: Edu-KOL -> Customer decision	5.66	Supported

Standard error in hypothesis, *p <0.05

Table 3: Hypothesis testing summary

Influencing factors when choosing Edu-KOL

As shown in Figure 6, the e-learning platform played a positive role in selecting Edu-KOL. Students' engagement scores from classes also positively correlate with the choice of Edu-

KOL, which means the higher the engagement level, the better they consider learning from the Edu-KOL of the class. Both perceived outcomes and actual outcomes are in positive correlation with the choice of Edu-KOL. A better-perceived outcome of a specific course, or a higher score of students, is positively fitting in line with the consideration of the Edu-KOL.

Parents' education level and occupation have limited effect on choosing Edu-KOL

The country culture variable is listed as 'not supported' in the hypothesis. In the survey design, we used parents' education level and occupation as the country culture indication for the testing environment of China. The initial assumption is that the higher level of education parents have achieved and/or the better job they are having will impact how they decide on choosing online courses for their children. However, in the PLS analysis, the data interpreted didn't support this argument. Regardless of parents' education level, or current occupation level, it won't influence how they select what courses and which Edu-KOL for their children. This is particularly interesting and counterintuitive but also showed all parents, regardless of their background or experience, are willing to spend the most they could afford in order to achieve the best possible educational outcome for their children, and they are able to identify what represents a good Edu-KOL.

Reputable Edu-KOL is the crucial decision point for customer advocacy

When surveyed on the motivation and reason for recommending a course to others, 70% of the respondents attribute it to 'the Edu-KOL is knowledgeable', whereas 25% consider 'because the course itself is important', and only 5% 'friends also like the Edu-KOL'. Parents also asked their top three priorities when considering online courses, and responses indicate Edu-KOL's reputation has ranked top three among the first three priorities (Figure 7).

Rank	Priorities	Votes	Priorities	Votes	Priorities	Votes
1	Content	42	Format	34	Friends/parents recommended	35
2	Edu-KOL reputation	29	Review	27	Content	21
3	Review	22	Edu-KOL reputation	22	Edu-KOL reputation	18
4	School recommended	20	School recommended	21	Format	16
5	Format	10	Content	20	Chanel	15
6	Friends/parents recommended	10	Friends/parents recommended	16	Review	13

Figure 7: Top Reasons for Parents to Choose a Course for Their children

Conclusion

This paper has examined how Edu-KOLs have been perceived to influence parents on their consideration and motivation for children's online learning journey. By conducting in-depth data analysis from the valid survey responses via the PLS-SEM model, we have verified the six predefined hypotheses, as to whether Edu-KOLs have a positive correlation with a perceived learning outcome, new customer retention and purchase decision. Subsequently, the second phase of interviews will be conducted via Zoom to collect relevant qualitative and quantitative data to further investigate the hypotheses of this research and set out to explore the adult learners' direct attitude and perception towards Edu-KOLs.

It is a foreseeable future learning technology and platforms should seriously consider Edu-KOLs' role in motivating and facilitating learners' journey with the influence on perceived learning outcomes.

Acknowledgments

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Students Perception of a Gamified Student Engagement Platform as Supportive Technology in Learning

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Abstract
Students are increasingly turning towards Web-based learning materials to supplement their education. One such approach would be the introduction of Gamified student engagement platforms (GSEPs) to instill a new learning culture. Data was collected from closed-ended questions via content analysis techniques. About 81.8% of college students from the Monash University Foundation Year agreed that GSEPs (Quizizz) was an effective tool for learning. Approximately 85.5% of students *disagreed* that games were a waste of time. Most students (94.5%) agreed that Quizizz made learning Chemistry fun. Gamified student engagement platforms (Quizizz) were highly effective among students to facilitate the learning process.

Keywords*:* Education, Game-Based, Quizizz, Learning Platform, Students, Technology

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Introduction

The Internet has many beneficial advantages especially as an information distribution channel for our current generation of students (Kiili, 2005). We need to further engage and motivate students in their learning process by applying some of the Internet technologies widely available today. As such, the introduction of Gamified student engagement platforms (GSEPs) in education may elicit a novel learning culture that corresponds better with students' interests (Jabbar and Felicia, 2015). In fact, games can provide an engaging environment for learning and are usually associated with fun.

Generally, games are designed to induce positive feelings in the players and are most successful if it facilitates the "flow" experience (Kiili, 2005). This "flow" experience is defined as a state of total and complete absorption in a particular activity which is referred to the optimal experience. It was first conceptualized after studying people involved in activities such as dance, rock climbing and chess (Csikszentmihalyi and Larson, 2014). The psychological state of a person during this "flow" period is so goal-driven that everything else pales in comparison during this duration because this experience encompasses a combination of action, awareness, concentration and sense of control (Chen et al., 1999).

With the advent of online learning, some students do not feel motivated to learn but would prefer to play games. A survey showed that 21-year-old Americans spend 2,000–3,000 h on reading, while averaging more than 10,000 h playing various games (Zeng et al., 2020). As such, there is tremendous interest to incorporate GSEPs in the pedagogical process to motivate and stimulate learning interest. The GSEPs are effective in facilitating learning as it can provide a good environment for problem-based learning and are good structures for students to solve smaller linked problems that constitute part of the big picture. Games permit students to apply new ideas and concepts, rather than the traditional rote learning of memorizing information to score well in assessments. Students also become active participants of the learning process, instead of passive learners of material presented.

It is understandable that lecturers maybe concerned if GSEPs would elicit positive learning outcomes or affect learning efficiency. As such, researchers have conducted empirical studies to verify the efficacy of GSEPs. Calvo-Ferrer (2015) reported that students learning vocabulary via a GSEP performed significantly better, found the materials more appealing and their vocabulary skills had improved more compared to those in the control group (Calvo-Ferrer, 2015). Cheng et al (2013) also discovered that their students who learnt complex immunology concepts via a GSEP statistically outperformed those who learned via the traditional route. The GSEP assessed the students understanding of procedural knowledge and higher-level cognitive processes (Cheng et al., 2013). GSEPs have been found to stimulate internal motivation, improve learning efficacy, increase knowledge retention, and promote higher-order thinking development (Zeng et al., 2020).

As such, this study also aims to attain valuable students' insights on how a GSEP such as Quizizz can enhance teaching and learning. The feedback of students on the usage of Quizizz and a few usability issues were also investigated in this study. A questionnaire was designed by the author to examine students' perceptions related to the utilization of a GSEP as a supportive technology in teaching and learning.

Methodology

The participants were 55 Pre-university students from the Monash University Foundation Year (MUFY) in Sunway College, Malaysia. The MUFY program is designed by Monash College and it provides an academic bridge for students to transition into various Monash University's undergraduate degrees. Students who join MUFY are generally 17 or 18-year old's who just completed high school or IGCSE 'O'-Level examinations. They consist of a mix of ethnic groups and international students from urban city backgrounds.

The participants in this study were full-time students who had enrolled in a Chemistry class. All participants had used the World Wide Web for over 6 years and were using the Web daily for educational purposes. After they have completed the learning of an important subtopic, a Quizizz was conducted. The format of the quiz and number of questions were dependent on the individual lecturer. The Quizizz platform is free and particularly suitable for students aged six years and above. Alternatives to the Quizizz GSEP would be platforms such as Kahoot, Poll Everywhere, Mentimeter and Blackboard Learn.

A questionnaire with eight structured questions was created and distributed after students had completed the Quizizz. The design of the questionnaire was to measure the effectiveness of using Quizizz as a supportive technology in learning. The questions focused on whether Quizizz was an effective tool for learning, assisted in memory retention of concepts, and explored several usability issues. As such, the structured questions ranged from whether Quizizz helped increase understanding about certain facts, to whether the platform added variety in the teaching process, on whether Quizizz made learning fun, to the necessity of having more of such online games in future. Other usability issues investigated were whether students felt GSEPs were a waste of time and if students felt stressed or pressured when playing Quizizz.

Results

It would be interesting to have a gauge of the effectiveness of Quizizz in learning Pre-University Chemistry. Based on Fig. 1, approximately 81.8% of college students from the Monash University Foundation Year (MUFY) agreed that Gamified student engagement platforms (GSEPs) such as Quizizz was an effective tool for learning. Only 3 students (5.4%) disagreed that it was an ineffective tool to supplement the teaching and learning process. About 14.5% of students gave a neutral response, indicative that they neither agreed or disagreed that Quizizz was an effective pedagogical tool.
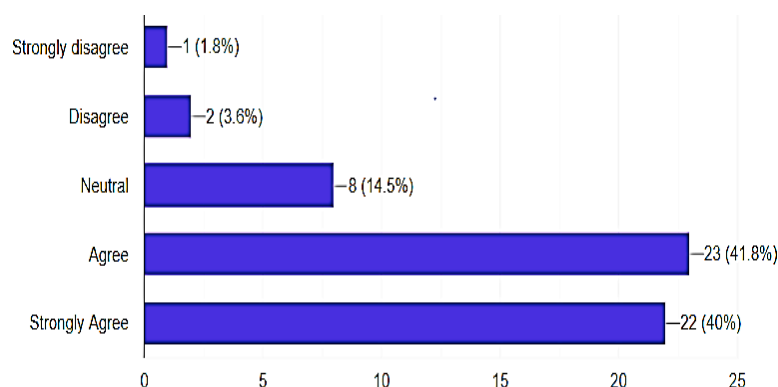
Figure 1: Students response towards the question on whether Quizizz was an effective tool for learning.

It was expected that a large proportion of students would find GSEPs fun and engaging in facilitating learning. Adding an occasional "game" to the traditional class will produce a break in the monotony of classroom lessons. In addition, games lower boredom and stress levels as student participation is high. Based on Fig. 2, a large majority of students (94.5%) agreed that Quizizz made learning Chemistry fun. About 5.5% students were neutral in their responses. There were some technical glitches when running Quizizz as a few students were not able to log onto the Quizizz website. This could have contributed to the 2 students who strongly disagreed that Quizizz was fun as they were probably frustrated they could not participate in this GSEP. They could only be passive participants, only being able to observe the Quizizz game in action and the excited faces of their classmates. Therein, lies the disadvantages of any online tool as it is subjected to technical glitches, slow broadband width or low capacity electronic gadgets.
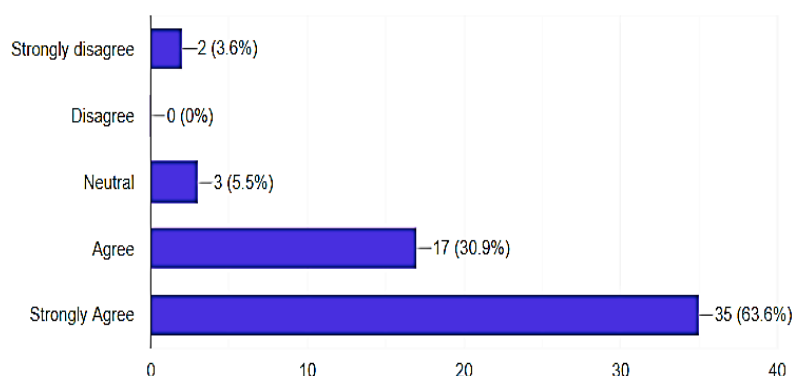
Figure 2: Students feedback on whether Quizizz made learning fun.

It is important to add variety to the pedagogical process to cater to students with varied learning styles, especially in this 21st century of Internet learners. Hence, it was good that 87.3% of students felt that Quizizz added variety to the teaching process. It is highly probable that the 2 (3.6%) students who responded that they did not feel Quizizz made learning fun could also be the same respondents who disagreed that Quizizz added variety in their learning process. Only 7.3% of MUFY student recorded a neutral non-committal response. Nevertheless, the graph is generally skewed in favor of students agreeing that GSEPs were beneficial in their education.
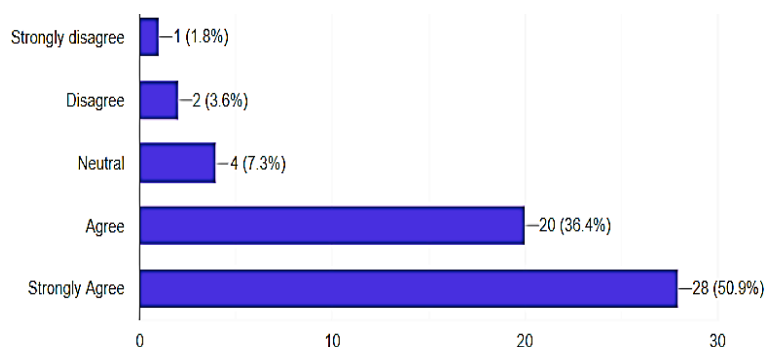
Figure 3: Survey results on whether Quizizz added variety in the teaching process.

It was interesting to determine if playing GSEPs was considered a waste of time and caused a deviation in student's focus. It was good to note that approximately 85.5% of students disagreed that games were a waste of time. Only 6 students (10.9%) were neutral in their responses, indicative that even in the absence or presence of Quizizz, they would be able to learn Chemistry seamlessly. However, the 2 students who had registered negative responses

for most of the closed-ended questions could very well be the same 2 students who indicated their agreement that GSEPs were a waste of time. It remains plausible that these 2 respondents could have interpreted the question incorrectly and chose an inaccurate response. If that were so, this would give an imprecise representation of the feedback scores.
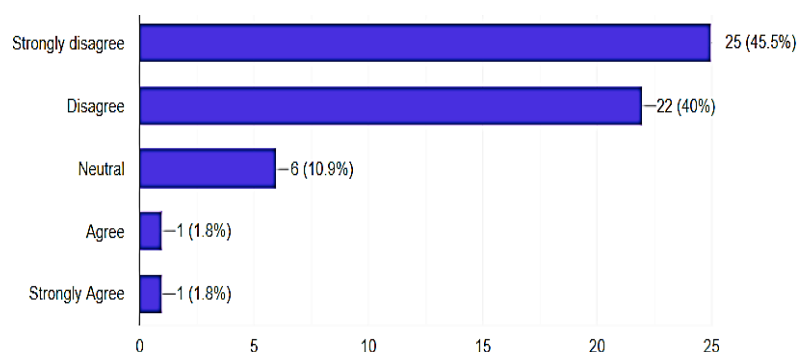
Figure 4: Respondents view whether GSEPs were a waste of time.

On whether Quizizz helped students increase their understanding about certain Chemistry concepts, only 58.2% of students agreed to that question. In addition, 36.4% of students showed a neutral response, implying that they did not agree/disagree that Quizizz increased their understanding about several Science notions. This could be due to the fact that GSEPs were viewed to be more of a revision tool, rather than aiding in comprehension of difficult Chemistry facts and principles. The conventional way of explaining on whiteboard or paper is still regarded as one of the best ways to help students understand complex scientific theories and concepts.
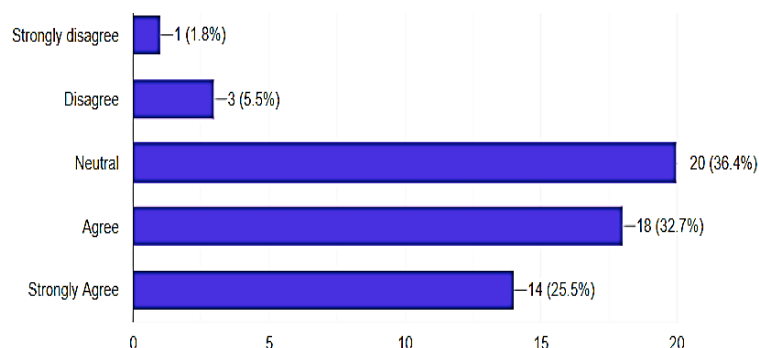
Figure 5: Students' opinion on whether Quizizz helped increase
their understanding about certain concepts.

It seems to be a misconception that students felt stressed or pressured when playing educational games due to the time limitations and competitiveness among students. Based on Fig. 6, approximately 18.2% of students *did not* feel pressured when playing Quizizz, in addition to almost half of the students (45.5%) that registered a neutral response. However, there were 21 students (38.2%) who admitted feeling stressed during Quizizz and further research could be carried out to ascertain additional reasons behind this stress factor. It could be possible that this group of students did not respond well to stress as these online games have a time limitation and also because there was indirect competition among classmates due to the ranking factor after each question. This group of 21 students could comprise of the academically strong students who may feel slightly demotivated or stressed when they observe that their ranking has dropped after several questions. This is because they may have

been used to attaining top positions in class and hence, place unnecessary pressure on themselves to perform well, even in a GSEP.
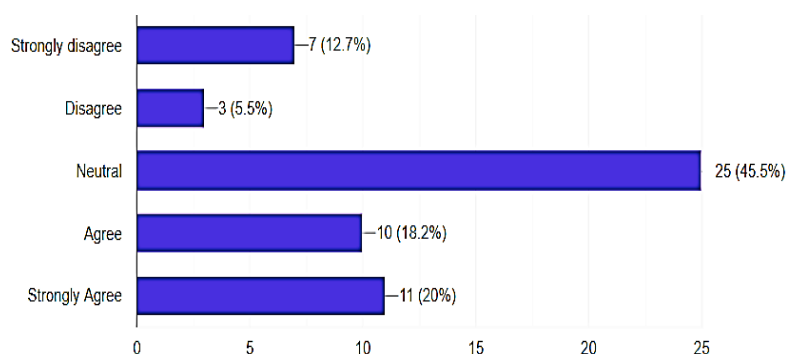
Figure 6: Feedback on whether students felt stressed or pressured
when playing Quizizz.

It was encouraging to observe that approximately 74.5% of MUFY students found that Quizizz helped in memory retention of certain Chemistry facts. This Science subject is generally difficult for most students and attaining feedback that GSEPs such as Quizizz could facilitate students learning is indeed promising. There were 16.4% of students who recorded a neutral response, indicative that for this group of students they neither felt that Quizizz helped nor did not help in memory retention. Nevertheless, it is also important to note that 5 students did not find Quizizz helpful in memory retention. This could be due to differing learning styles among this small group of students.
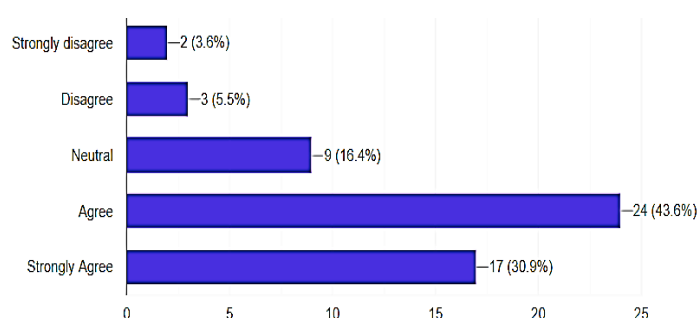
Figure 7: Questionnaire results on whether Quizizz helped in
memory retention of certain facts.

Overall, a good gauge on whether a learning tool is beneficial for students is if they would like to experience more of it in the future. If students had a negative experience of an innovative pedagogical tool, they would naturally give feedback that they would not wish to experience more of the particular tool. It was good to analyze that an overwhelming majority of students (89.1%) responded that they would like to have more Quizizz games in the future. Yet again, only 2 students did not wish to have more Quizizz platforms due to technical glitches that contributed towards a not-too-positive experience. Only 7.3% of students gave a neutral response, inferring that they had no special preference on whether there were more GSEPs in the near future.
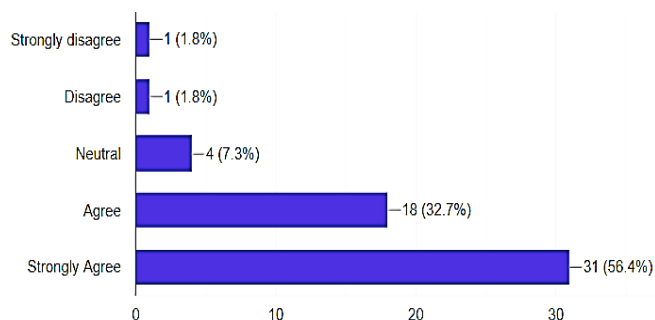
Figure 8: Respondents view on whether they would like to have
more Quizizz games in future.

Discussion

This study focused on identifying the effectiveness of student learning experiences with a specific Gamified student engagement platform (GSEPs), Quizizz in facilitating learning. It was analyzed on how these elements created engagement and affected learning and motivational outcomes within Quizizz. Currently, there is limited research performed on the impact of GSEPs on the academic performance of college students.

Elizabeth, H-S. (2016) pointed out that GSEPs shifted students' perspective from extrinsic to intrinsic motivation because games led to an increase in satisfaction levels of achievement and mastery (Elizabeth, 2016, p 227). As such, there have been suggestions of recommendations for future design of GSEPs for teaching and learning (Jabbar and Felicia, 2015, p 740). Other researchers such as Chik (2014) have carried out the utilization of digital games to stimulate second language learners in East Asia (Chik, 2014, p 85).

In this study, Quizizz was used as a supplementary tool to facilitate learning and it registered positive influence among college students. There remains a pressing need to constantly utilize and develop effective strategies to engage and enhance the academic success for this generation of students with varied learning styles. Hence, GSEPs such as Quizizz have to be explored to gauge the level of effectiveness to enhance students learning process. In fact, a direct alignment is required between the game, feedback, learning outcomes, and assessments (Turner et al., 2018).

Based on the results of this study, students found Quizizz an effective tool for learning (Fig. 1), learning was more fun (Fig. 2) and it added variety to their learning process (Fig. 3). Students experienced increased levels of understanding about certain Chemistry concepts (Fig. 5), memory retention of facts (Fig. 7), and expressed hope that there would be more future Quizizz games (Fig. 8). Contrary to popular belief, they did not feel that GSEPs was a waste of time (Fig. 4) and did not experience much stress or pressure during the "flow" of the game (Fig. 6). These findings are in accordance with previous research that GSEPs have a positive impact on the motivation and academic progress of students (Snow, 2016, p 5), as well as increased students' satisfaction and interest in their studies (Keller, 2008, p 40).

This study was designed to provide valuable feedback on the effectiveness of GSEPs in enhancing teaching and learning, both for the lecturer and student. This will enable lecturers to more effectively engage this generation of students by supplementing with other innovative educational tools. Although there maybe barriers and implementation issues revolving around GSEPs, efforts by lecturers to give games a try would be worthwhile as it

can provide students with greater exposure to context-specific, student-centered and problem-solving skills which are all critical for the workforce of the future. Future studies can incorporate an even larger sample size to have a better gauge of effectiveness in utilizing GSEPs to facilitate the pedagogical process.

Conclusion

This study demonstrated that Gamified student engagement platforms such as Quizizz could be a good supportive technology in teaching and learning. This was evident from the questionnaire results as students affirmed that the utilization of Quizizz was beneficial in their pedagogical process. Generally, the findings indicate that college students have positive attitudes about the incorporation of online games in education. An important finding was that students were agreeable that Quizizz made learning Chemistry fun as there were additional challenges and music accompaniments that added an exciting aspect to learning. In addition, there was an element of intra-class competition that motivated students to perform prior revision as the lecturer would notify students a day before to prepare and benefit more fully from Quizizz. This GSEP elicited better learning opportunities, catered to students with differing learning styles and had no usability issues. Overall, students showed positive and encouraging outcomes from using Quizizz to complement their traditional teaching and learning process.

Acknowledgments

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Impact of Professional Learning and Development Activities Participated in by
Secondary School Mathematics Teachers Through Kirkpatrick's Evaluation Levels

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Abstract

This study delved into the various learning and development (L&D) activities either provided or partnered by the Department of Education and attended by the secondary school mathematics teachers (SSMTs) of the Schools Division Office of Nueva Vizcaya. It involved 117 teachers, profiled along variables such as the level and number of L&D activities participated in for the last five years (beginning 2015), and the foci and content of the L&D based on the domains of the Philippine Professional Standards for Teachers (PPST) and Mathematics content standards. The study explored on understanding the SSMTs' L&D through the Kirkpatrick's levels of evaluation with the use of a mixed-method approach, particularly concurrent-triangulation. Survey questionnaire, interviews and document review were utilized as data gathering procedures. The study revealed that the SSMTs, considering the utility and relevance of the L&D, learned teacher and learner-centered approaches of teaching and technology-aided instruction to teach mathematics content which they were previously weak at. Derived learnings of the SSMTs from the L&D activities contributed to determining improvement of their individual and organizational performances. Also, the attainment of the four levels of Kirkpatrick's evaluation was the same regardless of the SSMTs participation in the 12 L&D activities in Mathematics.

Keywords: Behavior, Mathematics Content Standards, Performance, PPST Domains, Reaction, Results

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Introduction

In the field of Human Resource Management (HRM), learning and development (L&D) is always linked with organizational activity with an aim of developing and improving the individual, group or organizational performances. L&D plays a crucial role in wake of the technological advancement, effectiveness of the organizations, and to the experiences of human resources in their job.

The same situation is applicable and is expected to the teaching sector. Teachers, being the backbone of the Education Sector, need to continuously engage in any professional development since this becomes extremely necessary especially in coping with the changing demands of the teaching industry.

In the Philippine context, teachers have deep regard from educating themselves to many training programs provided by the government or other public and private agencies and institutions a manifestation that education occupies a central place in Philippine political, economic, social and cultural life and has always been strongly viewed as a pillar of national development and a primary avenue for social and economic mobility.

To note, today's government has been very open with its continuing efforts in intensifying policy dialogues along these issues, especially at the onset of K to 12 program encapsulated in Republic Act No. 10533, otherwise known as *The Enhanced Basic Education Act of 2013.*" It is very clear that the utmost aim of the Philippine educational system is a world where everyone has the opportunity and equal access to benefit from quality education.

In response to the rapidly changing learning environment of present and future learners DepEd's battle for quality education, the department introduced aggressive reforms to globalize the quality of basic education in the Philippines which is *"Sulong Edukalidad"* that has four key reform areas: (1) K to 12 Curriculum review and update; (2) Improvement of learning environment (3) Teachers' upskilling and reskilling; and (4) Engagement of stakeholders for support and collaboration, known as the KITE.

Further, to complement reform initiatives on teacher quality in line with the new professional standards for teachers, DepEd, through the Teacher Education Council (TEC), issued DepEd Order No. 42, s. 2017, which is the *"National Adoption and Implementation of the Philippine Professional Standards for Teachers (PPST)."* The PPST makes explicit as to what teachers should know, be able to do and value to achieve competence, improved student learning outcomes, and eventually, quality education.

The Schools Division Office of Nueva Vizcaya was recently accredited and attained maturity level 2 along PRIME-HRM of the Civil Service Commission. Being at maturity level 2 of the PRIME-HRM, the division has a defined process of monitoring and evaluating L&D interventions given to its human resource through the utilization of the Quality Assurance, Monitoring and Evaluation (QuAME) Tools. The utilization of the QuAME is a manifestation that monitoring and evaluating L&D adopts the levels of the Kirkpatrick's Evaluation Model in the same manner the Civil Service Commission does. To ensure the effectiveness of a L&D and to maximize learning by the trainees, an evaluation of the said activity shall be undertaken after its conduct. Evaluation should likewise be part of the program design preparation.

While the government spends much to various L&Ds to its human resource, most especially to the teachers, it is vital to know how these interventions have contributed to the learning outcomes – the achievement of learners as one of the measures of quality basic education. This endeavor falls part of the result level of the Kirkpatrick's model.

The researcher believed that one of the many ways in attaining the goals of mathematics education is through exposure of teachers to L&D activities as interventions. The study of Mahulo (2012) on the influence of teacher's training on the performance of students found that there were improvements in the mean score performance of every subject for the learners who came from the trained teachers and that major reductions in the mean score performance came from the untrained teachers.

Stemmed from the context of L&D as interventions to teachers and the aspects of evaluating these interventions through the four levels of Kirkpatrick's Evaluation Model, the study explored the various L&D activities participated in by the secondary school mathematics teachers of DepEd Nueva Vizcaya in the last 5 years beginning 2015. The study gauged how far DepEd has been successful in providing L&D interventions to its mathematics teachers despite low results of performances in various assessment conducted from among the learners. Also, this discourse to the various components of the L&D interventions provided to the SSMT anchored along the domains of the PPST and the content and performance standards of the K to 12 Mathematics. The study provides the division to strengthen and enhance its policies toward improving learning and development services to its human resource most especially on providing L&D interventions to teachers which can improve their individual, peers and organizational performances, and eventually, the improvement of the learners' achievement.

The study was thus, conducted to shed light on the various learning and development activities participated in by the secondary school mathematics teachers of DepEd-Nueva Vizcaya from the year 2015 to 2019, and their attainment of the four levels of Kirkpatrick's Evaluation Model.

Methodology

This study evaluated the learning and development (L & D) activities provided by DepEd and other training institutions participated in by 117 secondary school mathematics teachers (SSMT) of the Schools Division Office of Nueva Vizcaya. The Kirkpatrick's Training Evaluation Model was used which involved four levels, namely: reaction, learning, behavior and impact. These levels were related to level and number of L&D activities participated in for the last five years (2015-2019), the foci and content of the L&D based on the domains of the Philippine Professional Standards for Teachers (PPST) and Mathematics content standards. The mixed-method approach, particularly concurrent-triangulation was used with survey questionnaire, interviews and document review.

Results and Discussion

Section 1. Learning and Development Activities Participated in by the Secondary School Mathematics Teachers from 2015 to 2019

The L&D activities participated in by the secondary school mathematics teachers of SDO-Nueva Vizcaya in the last 5 years were either provided or partnered by the Department of

Education mostly in the division and regional level addressing their development needs. These L&D activities were conducted along personal growth and professional development, curriculum and planning, and content knowledge and pedagogy focusing on the contents of Statistics and Probability, Geometry and Patterns, and Algebra. SSMTs have limited participation in L&Ds that dwell on the diversity of the learners, assessment and reporting, and community linkages and professional engagement.

Section 2: Extent to which the Secondary School Mathematics Teachers' Participation in L&D Activities contributed in the Attainment of Four Levels in Kirkpatrick's Evaluation Levels

Applications of the various L&D programs participated in by secondary school mathematics teachers were assessed using Kirkpatrick's Evaluation Levels. The data collected from each evaluation levels were evaluated using different instruments and results of data analyses were elaborated for the four level evaluation aspects. Each level evaluation aspect was analyzed to obtain information on the teachers' application on the various L&D they participated in.

Ttable 1: Summary Table of the Mean, Standard Deviations and Qualitative Descriptions on the Four Levels in the Kirkpatrick's Evaluation Model

Level	Highest Value	QD**	Mean	SD*	QD**
Reaction Level	3.58	HMTE	3.17	0.93	MMTE
Learning Level	3.69	HE	3.51	0.63	HE
Behavior Level					
1.Assessment from the Classroom Observation Tools					
Proficient Teachers	4.55	VS	4.46	0.60	VS
Highly Proficient Teachers	4.70	O			
2. Assessment from Learners	3.78	HP	3.57	0.65	HP
Results Level					
1. Assessment from the teachers	3.34	A	3.09	0.73	A
2. Achievement of Learners	88.31	VS	87.62	4.85	VS
3. Performance of Teachers	4.425	VS	4.30	0.12	VS

SD- Standard Deviation, QD**- Qualitative Description*

Reaction as assessed by the SDO-NV teacher-participants about the L&D they participated in from the year 2015 to 2019 has the highest mean value of 3.58 which is qualitatively described as highly met the expectation and with an overall mean of 3.17 with adjectival rating of moderately met the expectation. In general, the results show that the L&D activities were delivered with very good facilitators/speakers utilizing various learning methodologies and approaches.

Kirkpatrick's Level II determined what the SSMTs learned during the training with the highest mean score of 3.69. The extent to which their knowledge and/or skills are at high extent as manifested by an overall mean of 3.51. Further, based on the conducted assessment and interviews, these L&Ds they participated in provided them skills needed in the teaching and learning along the PPST domains which are essential in teaching Mathematics. The L&Ds they attended also increased their awareness and knowledge about the topics discussed during the seminars.

Level III of the model evaluated the behavior of the SSMTs after training. Specifically, it attempted to evaluate how the teachers applied what they have learned. Results from the proficient teachers' COTs reveal that the learnings from the L&Ds they participated in were applied very satisfactory with the highest mean of 4.55 while the highly proficient SSMTs, outstandingly applied the learning they have gained from the L&Ds with the highest mean score of 4.70. The overall mean of behavior from the COTs of the SSMTs was 4.46 which means that they applied well-connected pedagogical aspects of all the objectives consistently aligned with student's development. This also validates the results of the study of Eugenio and De Gracia (2019) that employees who attended L&Ds applied their derived learnings and these contributed to their individual and organizational performance.

Further, the highest mean results from the assessment of the learners on the level of practice of the SSMTs was 3.78 with adjectival rating of highly practiced and with an overall mean score of 3.57. This means that the gained knowledge from the L&D activities participated in by the SSMTs were highly practiced in the teaching and learning process.

To trace the applications of the learnings of the SSMTs about their participation in the various L&Ds they have participated in, they were asked about their output after the trainings, and results revealed with the highest mean of 3.34 which means that they were "accomplished" in applying the gained knowledge from the L&D. Moreover, their practices were assessed by the students under them and results revealed a mean score of 3.09 that affirmed the findings that they are at "accomplished" level. Further, the results sustain the findings in the study of De Gracia (2017) that recognized secondary school Mathematics teachers described as "accomplished" on mathematics content and pedagogical knowledge. In terms of Mathematics Content Knowledge, the Recognized SSMTs at an "accomplished" level on mathematical concepts, processes, communication and connections. In terms of the mathematical pedagogical knowledge, they were at an "accomplished" level along school mathematics curriculum, students' cognition of mathematics, mathematics teaching and mathematical disposition.

Meanwhile, in the year 2019, the SSMTs have the highest performance level with a mean of 4.425 which is qualitatively described as very satisfactory. The overall mean performance rating is 4.30 which means that the SSMTs performed very satisfactorily in applying what they learned during the L&D in the workplace and or in the organization.

On the other hand, the learners performed very satisfactorily (88.31) at Grade 9 level and the overall mean performance of the learners is 87.62 with adjectival rating of very satisfactory.

Section 3: Combinations of the L & D Activities Participated in by the SSMTs and Levels of L&D Predicting the Levels of Attainment of the Levels of Kirkpatrick's Evaluation Model

Table 2: Summary of the Simultaneous Regression Models in the Attainment of the Four Levels of the Kirkpatrick's Evaluation Model

MODEL	DEPENDENT VARIABLE	F	Sig.	R^2
1	Reaction	1.47	.14	.16
2	Learning	.94	.52	.11
3	Behavior 1(Assessment from COT)	1.49	.13	.16
4	Behavior 2 (Assessment from Learners)	1.99	.03*	.20
5	Results 1 (Assessment from Teachers)	.60	.85	.07
6	Results 2 (Achievement of the Learners)	.66	.80	.08
7	Results 3 (Performance of the Teachers)	1.08	.39	.12

*significant at p<0.05 (two-tailed)

The combinations of the 12 learning and development activities participated in by the SSMTs and the weighted level of L&D do not significantly predict the level of attainment of the Kirkpatrick's evaluation level along reaction, $F(13, 103) = 1.47$, p = .14, $R^2 = .16$; along learning, $F(13, 103) = .94$, p = .52, $R^2 = .11$; along behavior based on the classroom observation, $F(13, 103) = 1.49$, p = .13, $R^2 = .16$; along results as assessed by the SSMTs, $F(13, 103) = .60$, p = .85, $R^2 = .07$; along results based on teachers' performance, $F(13, 103) = 1.08$, p = .39, $R^2 = .12$; and along results on the achievement of the learners, $F(13, 103) = 1.66$, p = .80, $R^2 = .08$. These mean that the attainment of Kirkpatrick's evaluation model along these levels is the same regardless of their participation in the other learning and development activities in mathematics from the years 2015 to 2019.

Whereas, there is a combination of the 12 L&Ds that significantly predicts the attainment of level of behavior as assessed by the learners in the Kirkpatrick's Evaluation Model, F(13, 103) = 1.99, p = .03, $R^2 = .20$. The beta weights of the L&D 2 (-.012), L&D 5 (.087) and L&D 8 (-.190) suggest that participation of the SSMT in the *Regional Training of K to 10 Teachers on Critical Contents* (L&D 5) and participation in other L&Ds aside from the *Seminar-Workshop on Content Teaching and Methodologies in Statistics and Probability (L&D 2)* and *Pedagogical Retooling in Mathematics, Language and Science for Junior High School* (L&D 8) contributed to the prediction with adjusted R square value of 0.20, indicating that 20% of the variance in attaining the level of behavior as assessed through SSMT teaching practices was explained by the model, which according to Cohen (1988), is a small effect.

A stepwise regression analysis was conducted to determine which particular L&D contributed to the prediction of the attainment of behavior as assessed by the learners. The stepwise regression model was computed.

Table 3: Stepwise Regression Model Predicting the Attainment of the Level of Behavior in the Kirkpatrick Evaluation Model as Assessed by the Learners

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	ß		
1	(Constant)	3.575	.019		193.211	.000
	L&D8	-.153	.076	-.186	-2.026	.045

Results revealed that using stepwise method with probability F-value of .05 for the entry and .10 for removal of variables, only *Pedagogical Retooling in Mathematics, Language and Science for Junior High School* (L&D 8) significantly predicted the attainment of the level of behavior of the SSMTs as assessed by the learners, $F(13, 103) = 4.10$, p = .045, $R^2 = .034$ with beta weight of -.153 suggesting SSMTs participation to other L&D activities aside from L&D 8.

Further, based from the results, the model is $y = -.153x_8 + 3.58$ where y is the level of behavior of the SSMT according to their teaching practices and participation in the *Pedagogical Retooling in Mathematics, Language and Science for Junior High School* as x_8 which is the independent variable and 3.58 as the constant value. If the SSMT participated in the L&D- *Pedagogical Retooling in Mathematics, Language and Science for Junior High School (L&D 8)*, then the level of behavior of the SSMT according to their practices is moderately practiced, while if the SSMT participated to other L&Ds aside from L&D 8 then the behavior level of the SSMT in the application of the learning gained from the other L&Ds is highly practiced. Accordingly, Heydari et al. (2019) put premium on the idea that an increasing learning on the new teaching and learning methods from workshops becomes more integral in performing tasks in the workplace.

Section 4. Issues, Challenges, and Proposed Solutions of the Secondary School Mathematics Teachers and the Researcher for the Improvement of Mathematics L&D

Each year, thousands of teachers participated in a range of L&D that reflects substantial investment of time and money (Haslam, 2010). Yet despite widespread reliance on professional learning as a core component of efforts to meet the challenges of educating the learner, educators have little systematic information to allow them to assess the quality of L&D or gauge their contribution to professional practice.

Table 4: Issues, Challenges, and Proposed Solutions of the SSMTs
for the Improvement of Mathematics L&D

Issues and Challenges	Proposed Solutions
1. Time constraint	-Conduct the L&D during weekends -Limit travel requirements -Optimize online L&D
2. Different learning levels and habits	-Conduct a survey on teachers' L&D preference -Incorporate different strategies to cater to the different -learning levels of the teachers
3. Financial a. Financial constraints	-Online training (OT) – OT minimizes the need for travel and venue costs and often lowers facilitation costs
b. Lack of funds in the reproduction of activity sheets and worksheets	-Soft copies of activity sheets/ worksheet may be shared through internet
4. Division training venue	-Video Conferences, Webinar and Online fora
5. Level of readiness of the learners	-Provision of L&D addressing different learning styles of learner
6. The use of technology in teaching	-More trainings on the use of ICT in teaching and learning
7. Tools on data analysis	-Provision of longer days on L&D of doing data analysis

Time constraint on the part of the teachers is the top-most disturbing factor to consider in conducting L&D program. To arrest such concern, virtual modality may be considered. L&D proponents should optimize the use of online seminars and/or training called "webinar." Employing online modality of carrying out L&Ds will not require teacher participants to travel to join in face-to-face engagement. Doing so, especially during weekends, will reduce the burden of teachers to adjust to their full-packed teaching and teaching-related loads and/or schedules. Travel time, especially for teachers who are stationed in far-flung or distant schools to the venue, really challenge them. Hence, online L&D will greatly reduce the problem on time adjustments.

Also, the table shows that diversity along learning levels, habits, and interests matters in any learning engagement, and the conduct of a survey on teachers' training preference and incorporating different strategies to cater the different learning levels of the teachers may greatly resolve these challenges. Hervie & Winful (2018) recommended a periodic learning needs assessment to be conducted before training programs are designed for teachers to address individual differences.

Financial constraints can never be an exception. According to the teachers, they find some L&Ds cost. So, online approach may reduce the problem on finances and on printing and reproduction of activity sheets and worksheets. Being given the soft copy will surely lessen the expenses of teachers.

The fourth element that challenges much the teachers is the venue of the activity; that when done online/virtually, optimized learning may be achieved. McCullen (2016) hypothesized that choosing the right venue, and closely attending to details such as learning environment, amenities and technology will help guarantee a successful learning experience for the employees.

Levels of readiness on the part of learners also matter. Teachers find some challenges in dealing with diverse learners. Training on addressing different learning styles of learner will help resolve the issue. As ascertained by Deunk, Smale, de Boer, Doolaard and Bosker (2018), differentiated instruction practices in primary education show that differentiated instruction has the potential of improving student outcomes, when implemented well.

Another problem, is on the use of technology in teaching for which teachers can be provided with more L&D using ICT in teaching and learning for this will make them more productive in their field of work.

Finally, the teachers admit that they find difficulty in understanding the statistical tools used in data analysis which made them suggest and propose that a three-to-five-day training on data analysis will greatly help them enhance their prior knowledge about it.

**Table 5: Proposed Solutions of the Researcher for
the Improvement of Mathematics L&D**

Findings	Proposed Solutions	Link Policy Guidelines
	PRIME-HRM L&D Practices	
1.The L&D activities participated in by SSMTs were mostly conducted in the division level and lasted for three days. These L&Ds captured personal growth and professional development, content knowledge and pedagogy, curriculum and planning, focusing on Patterns and Algebra, Geometry and Statistics and Probability.	1.a. Inclusion of L&D activities for at least 3-day (DO No. 42, s. 2007) to capture commitment to practice the derived learnings through REAP and capturing on Learning Environment, Diversity of Learners, and Community Linkages and professional engagement.	1.a. -Civil Service Commission-PRIME HRM Core Area – L&D CSC Memorandum Circular No. 3, s. 2012 DO No. 42, s. 2007 -The Revised Guidelines on Selection, Promotion and Designation of School Heads
2. In the conduct of document review, none of the documents was seen on the SSMTs' portfolio about REAP or LAP of the SSMT participation in L&Ds and these are very essential for attaining at least level 2 of the PRIME-HRM.	1.b. Re-entry Action Plan of Teachers with at least 3-day Attendance in L&D shall be included together with its monitoring report and the certificate in the MOVs for the RPMS-PPST Portfolio	1.b. RPMS-PPST _ Domain 7 DO No. 42, s. 2017 CSC, 2018 DO No. 5, s. 2015- The RPMS
3. The knowledge gained was applied to improve the SSMTs' performance and helped them contribute to their school performance through the technical assistance of their colleagues, and for the professional growth of teachers.	Review of documents for assessment particularly on the promotion of teachers (T- I, T-II, T- III and MTs) may capture REAP plus its Implementation Report, for L&D activities of at least 3 days and or any level with equal point as evidence of applications of training or L&D in general.	Revised Guidelines on the Appointment and Promotions of other Teaching Related Teaching and Non-Teaching Positions (DO No. 66, s. 2007)

	Addressing Developmental Needs	
4.Proficient teachers were at emerging level in conducting action researches on teaching-learning to improve learning outcomes.	School Heads, Department Heads or Master Teachers may device mechanism of closing out or addressing developmental needs of teachers attending various L&D and may become a referencing in sending teachers to L&D activities or programs	DO No. 2, s. 2015-RPMS Phase IV-Development Planning
5. The provision of technical assistance to peers is vital in the realization of RPMS-PPST in improving the performance of the less experienced/less knowledgeable co-teachers.	Strengthening provisions of Technical Assistance to teachers through reading circles, conduct of LAC among others captured in the implementation of School's L&D Plan	DO No. 35, s. 2016, LAC K to 12 Basic Education Program School-Based Continuing Professional Development Strategy for the Improvement of Teaching- Learning DO 2, s. 2015

Inclusion of L&D activities for at least 3 days may be captured through Re-entry Action Plan (REAP) and a monitoring report with MOV to be included in the teachers' RPMS-PPST portfolio, for IPCRF rating. Inclusion of REAP and implementation report as evidence for the application of learning from the L&D for the teachers be considered during assessment for promotion of teachers. The findings of this study serve as basis in devising a mechanism of sending teachers to trainings based on their development needs. There is a need of strengthening the provisions of TA to teachers through reading circles, conduct of LAC among other teachers as a school-based continuing professional development (CPD) strategy for the improvement of the teaching and learning process to improve learning outcome and teaching performance.

Conclusions

1. Learning and development activities participated in by the secondary school mathematics teachers addressed their development needs along content and pedagogy and have provided them learning avenues for their professional growth. They were equipped with concrete understanding of the curriculum frameworks from their participation in various learning and development activities either provided or partnered by the Department of Education and have utilized them for their personal growth and professional development. However, SSMTs need to be equipped on PPST domains on learning safety and security, assessment and reporting, diversity of learners and community linkages and professional engagement.

2. Secondary school mathematics teachers consider the learning derived from the L&D activities, its usefulness and its relevance to their profession. They were able to learn teacher and learner-centered approaches of teaching and technology-aided instruction to teach Mathematics content which they are previously weak at. The knowledge they have acquired were translated to improve their performance and helped them contribute to their school performance through provision of technical assistance to their colleagues. However, the SSMTs, particularly the highly proficient teachers (master teachers), still have difficulty

conducting classroom-based action researches on teaching-learning for the improvement of learning outcomes.

3. Attainment of the level of behavior based on the teaching practices of the SSMTs can be predicted by the regression equation given by *y = -.153x$_8$ + 3.58* where *y* is the level of behavior of the SSMT based on teaching practices and participation in other L&D activities aside from the *Pedagogical Retooling in Mathematics, Language and Science for Junior High School* (x_8).

4. A proposed future L&D activity is recommended by the secondary school mathematics teachers along the PPST Domain such as on diversity of learners, content knowledge and pedagogy with mathematics content along Statistics and Probability, Patterns and Algebra. Actualization of derived learnings from L&D participation may be integrated along strengthening PRIME-HRM, L&D, assessment for promotion and addressing development needs of the teachers.

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Best Practices for Public Speaking Instruction for EFL Undergraduate Students in Japan: Based on Literature Review From 2016 to 2021

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Abstract

This paper attempts to identify the best practices for teaching Public Speaking for Japanese EFL undergraduate students through a literature review of papers published between January 2016 and April 2021. The paper will be relevant to educators and administrators in charge of or are about to design a Public Speaking course at universities in Japan and abroad. According to Regmi et al. (2010), studies unavailable in English are often excluded from systematic reviews because of language restrictions. Additionally, Sunol and Saturno (2008) argued that research conducted in languages other than English is less available and referenced than those published in English. The organization of the paper will be as follows: (1) a definition of Public Speaking for the purpose of this paper based on literature review, (2) how EFL Public Speaking has been taught in Japan for undergraduate students from 2016 to 2021 based on literature review, (3) how EFL, ESL, and Public Speaking in the native language is taught in countries outside of Japan for undergraduate students from 2016 to 2021, (4) what is known to hinder the act of Public Speaking through research, (5) research-based suggestions offered by researchers and teacher-researchers for effective instruction of Public Speaking at the undergraduate level offered in research papers from 2016 to 2021, and (6) best practices for teaching EFL Public Speaking at the undergraduate level in Japan based on literature from 2016 to 2021.

Keywords: Public Speaking, Higher Education, Curriculum, Instruction, Administration, Japan, Abroad

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Introduction

To what extent are faculty members at undergraduate programs aware of how Public Speaking courses are taught in and outside of their own teaching contexts? And to what extent do they apply the best practices to their own teaching contexts? This paper attempts to identify the best practices for teaching Public Speaking for Japanese EFL undergraduate students through a literature review of papers published between January 2016 and April 2021. The paper will be relevant to educators and administrators in charge of or are about to design Public Speaking at universities in Japan and abroad. According to Regmi et al. (2010), studies unavailable in English are often excluded from systematic reviews because of language restrictions. Additionally, Sunol and Saturno (2008) argued that research conducted in languages other than English is less available and referenced than those published in English. The organization of the paper will be as follows: (1) a definition of Public Speaking for the purpose of this paper based on literature review, (2) how EFL Public Speaking has been taught in Japan for undergraduate students from 2016 to 2021 based on literature review, (3) how EFL, ESL, and Public Speaking in the native language is taught in countries outside of Japan for undergraduate students from 2016 to 2021, (4) what is known to hinder the act of Public Speaking through research, (5) research based suggestions offered by researchers and teacher-researchers for effective instruction of Public Speaking at the undergraduate level offered in research papers from 2016 to 2021, and (6) best practices for teaching EFL Public Speaking at the undergraduate level in Japan based on literature from 2016 to 2021.

Defining Public Speaking

After carefully considering three definitions of Pubic Speaking, Bayne's definition of Public Speaking will be used to define Public Speaking for this paper. The process of how the definition was formulated for the paper will be described hereafter. Bayne (2019) distinguishes public speaking (i.e., referring to groups such as in a classroom or meeting) from Public Speaking (i.e., referring to a formalized training context one might find at business seminars and institutions of learning). Since the focus of this paper is teaching a course that is solely focused on Public Speaking effectively for Japanese EFL undergraduate students, capitalized Public Speaking will be employed throughout the paper to refer to classes focusing on Public Speaking.

Public Speaking instruction for Japanese EFL undergraduate students

Three relevant papers (Bayne, 2019; Yamashita & Fuyuno, 2016; Fuyuno & Yamashita, 2020) were found from a review of papers written from 2016 to 2021 regarding how Public Speaking is taught at the undergraduate level for EFL students. Based on the aforementioned available literature, class size and whether English is taught as ESP (i.e., English for Specific Purposes) makes a difference as to the nature of how Public Speaking is taught. Furthermore, while there has been an attempt to develop material using technology for students to continue to work on Public Speaking outside of the classroom, progress has been insufficient to be widely implemented in classrooms in Japan at the undergraduate level.

Bayne (2019) proposes a variety of ideas employed by the teacher-researcher to teach Public Speaking at the undergraduate level for Japanese EFL students that can be categorized into extemporaneous and impromptu speech (Mortaji, 2018). Activities that Bayne (2019) incorporates in class include: brainstorming, summarizing, outlining, group presentations, and providing examples of speeches. For a two-semester course on Public Speaking, he

requires students to deliver three presentations in total that requires students to present on topics set by the instructor while providing autonomy within the parameters. For brainstorming, Bayne (2019) uses the acronym iPOD, a term students already know, to refer to the steps for preparing a presentation (i.e., idea, Plan, Organize, and Deliver), suggesting that faculty members can devise their own acronyms or organizational ideas for students to prepare for extemporaneous speeches. Additionally, Bayne (2019) also offers the idea of a three-things presentation in which students present in two to three minutes three things about an idea, such as their names and what they love and hate. In contrast to the iPOD acronym which is an extemporaneous speech, the three minute three things activity can be categorized into an impromptu speech which requires little or no preparation (Mortaji, 2018).

In contrast to employing both extemporaneous and impromptu speech, large classes that are based on ESP in the undergraduate EFL Japanese context focuses on learning content relevant to students' majors through the English language and finishes the course with grouped extemporaneous speeches. Yamashita and Fuyuno (2016) taught Public Speaking for Japanese undergraduate design students using a movie entitled *The Devil Wears Prada* (Frankel, 2006). Yamashita and Fuyuno (2016) found that such a method allows students to extend both their specialized knowledge of design and the linguistic knowledge in the target language. For the extemporaneous speech at the end of the course, the students were grouped into ten groups of four to five students with one group presenting for fifteen minutes including questions and answers (Yamashita & Fuyuno, 2016). Since the class size was large, lectures that introduced design concepts and showing several minutes of the movie each week comprised most of the class content, and weekly feedback to improve students' Public Speaking skills were not provided. With this case, it can be argued that large class size may be suitable for teaching ESP via movies and lectures with an extemporaneous speech at the end. However, the tradeoff is that the students will not have weekly practice and feedback on extemporaneous and impromptu speeches.

Aside from classroom teaching in the Japanese EFL undergraduate courses, there have been attempts to develop VR Public Speaking software in English, so students can develop their Public Speaking skills outside of their classroom. Fuyuno and Yamashita (2020) tested a prototype of a VR public speaking software in English on middle school and undergraduate students in Japan and found that the participants in the study did not have usability issues, and positive feedback were provided in terms of effectiveness, engagement, and enjoyment using the software. However, Fuyuno and Yamashita (2020) noted that there is still room for improvement on all aforementioned three criteria, suggesting the difficulty of developing an effective software to practice Public Speaking that can supplement classroom learning. From the available research between 2016 to 2021 on Public Speaking instruction for undergraduate students in Japan, more time is expected to take until an effective Public Speaking digital software is adapted by universities to supplement classroom instruction. Currently, the responsibility to teach Public Speaking is left to the responsibility of each teacher in the classroom in the Japanese EFL context at the undergraduate level.

Public Speaking instruction for undergraduates who live outside of Japan: EFL, ESL, and native language

Responsibility for Public Speaking also is ultimately left to the responsibility of each teacher in the classroom for non-Japanese EFL Public Speaking courses. Five different approaches to deliver a Public Speaking course outside of Japan are documented in literature published between 2016 and 2021 which includes Indonesian EFL undergraduate students (Daud,

Chowdhury, Mahdum, & Mustafa, 2020), American undergraduate students (Lyons, 2017; Walton, 2018), U.K. undergraduate students (Quinn & Goody, 2019), and Filipino ESL undergraduate students (Pontillas, 2020).

As with the first approach, Daud, Chowdhury, Mahdum, and Mustafa (2020) reported a mini-seminar project conducted in one Public Speaking course of advanced students at an Indonesian public university. The advanced class was what the researcher considered a large class consisting of 35 students, and the mini-seminar was held in the sixteenth week, the last session of the course, in which the students were given three weeks to prepare. Preparation time included time for each group to design the seminar program, determine the theme of the seminar, divide roles among group members, prepare slides and speech concepts, and time for rehearsal. Daud, Chowdhury, Mahdum, and Mustafa (2020) recommend the mini-seminar not only because it can be used as an alternative assessment model replacing final exams but also because it encourages students to work together in teams and work creatively. The researchers suggest that collaboration and creativity are key competencies that instructors must develop in the classroom in order to respond to challenges posed in society today.

As with the second approach, Lyons (2017) included a global component into a Fundamentals of Public Speaking course taught by the author at Albany State University and found through reflection that important course goals can be reached while infusing an internationalization component without excessive work on the part of the students or the faculty members. Students were placed in groups of five or six and each group selected a theme related to study abroad and places abroad. Each group member examined an aspect of the group's selected theme in a two to three minute-speech. Sixteen students were enrolled in the Fall 2016 semester, and each student was assigned to a group that consisted of five to six students. Students were given three class periods of one week to conduct lap-top research and three periods of one week to practice their speeches. At Albany State University, enrolled students were asked to deliver three speeches: an experience (i.e., descriptive speech), an informative speech, and a group informative speech. For the final speech a group informative speech, students were divided into groups of five and each group was tasked with selecting a group theme. Lyons (2017) points out that internationalizing the course increased the students' knowledge regarding other cultures and encouraged students to take part in the Study Abroad Program at Albany State University.

As with the third approach, Walton (2018) examined how one communication teacher dealt with issues of student reticence and fear in her introductory Public Speaking courses through the use of humanistic, student-centered principles. Walton (2018) found that the teacher's pedagogy emphasized the expression of feelings and emotions, prizing the whole student, and intrinsic motivational learning. Walton (2018) pointed out that while conventional modes of education accentuate rigid behavioral objectives, quantifiable assessment of learning, and objective ways of knowing, humanistic adherents favor approaches intended to encompass the continuity of cognitive and affective educative experiences. Madilyn, the teacher of the Public Speaking courses, kept her students focused on self-directed methods of personal growth and development by employing a version of mastery learning for all major class presentations, in which students can present the speech multiple times.

As with the fourth approach, Quinn and Goody (2019) evaluated the effectiveness of a course aimed at reducing undergraduate students' levels of Public Speaking anxiety and found that across the nine sessions offered with gradual increase in the number of audiences, students had significant reductions in scores on two standardized measures of Public Speaking

anxiety: the Audience Anxiousness Scale (Leary, 1983) and the Personal Report of Communication Apprehension (Levine & McCroskey, 1990). Based on the results, Quinn and Goody (2019) conclude that university departments consider offering courses for students that allow them to practice Public Speaking. Quinn and Goody (2019) point out that out of the 86 students who signed up for the course, only 27 completed the full program. The researchers suggest that if reduction in Public Speaking anxiety can be achieved with fewer sessions, higher number of students may be able to complete the course. They note that students who report very high Public Speaking Anxiety may also have general anxiety issues that require intervention from trained professionals such as clinical psychologists. Quinn and Goody (2019) state that providing students with graduated opportunities to practice Public Speaking while encouraging self-reflection can help them develop their employability.

As with the fifth and final approach, Pontillas (2020) examined 28 undergraduate students in the Philippines who enrolled in Pontillas' (2020) second semester course and found that the teacher-researcher's intervention was effective in helping the students alleviate their fear of public speaking, although the study also confirmed that speaking anxiety did not correlate with speaking proficiency. Motivational letters that provide feedback on students' speech and students' reflection journal format are offered in the research paper. Pontillas (2020) notes that in the Philippines, although English is already a second language in which it has been the medium of instruction from elementary to post-graduate levels, Filipinos still have moderate to high speaking communication anxiety.

What is known to hinder the act of Public Speaking through research?

In the previous section, we have witnessed how in the ESL and native language Public Speaking contexts, anxiety is viewed as a major factor that hinders the act of Public Speaking (Walton, 2018; Quinn & Goody 2019; Pontillas, 2020). Research on Public Speaking supports how in the EFL context, anxiety is considered a major hinderance for Public Speaking students. This section examines the factors that cause students to be anxious in the EFL Public Speaking contexts outside of Japan, before delving into the ensuing two sections on the pieces of advice that researchers and teacher-researchers have offered for teaching undergraduate level Public Speaking courses well and drawing conclusions for how to effectively teach Public Speaking courses for Japanese EFL undergraduate students.

First, with the Lybian EFL undergraduate students, Toubot, Goh, and Abdullah (2018) examined fourth-year undergraduate level students' speaking anxiety that contribute to increasing speaking anxiety among EFL learners in the English department at three universities in Libya and found that low self-confidence was the highest scoring factor followed by fear of negative evaluation and communication appreciation. Specifically, the results indicate that the majority of the students experience low self-confidence; more than half of the students experience fear of others' negative evaluation, and more than one-third experience communication apprehension (Toubot, Goh, & Abdullah, 2018). Based on literature review, Toubot, Goh, and Abdullah (2018) found it debatable whether speaking anxiety and linguistic competence affect each other. According to the research conducted by Toubot, Goh, and Abdullah (2018), more than one-third of the students experience speaking anxiety because of (1) the number of rules they need to master in order to speak grammatical English, (2) they are speaking with native speakers, (3) they feel that their peers are better than they are at speaking in class, and (4) they are speaking in class.

Second, with Thai EFL undergraduate students, Kalra and Siribud (2020) examined anxiety issues faced by 63 first-year engineering students who were Thai EFL students from their own and the researchers' perspectives based on (1) classroom observation, (2) semi-structured interview, and (3) a questionnaire designed based on the researchers' literature review. Kalra and Siribud (2020) found that anxiety was found to cause problems related to self-confidence, self-esteem, and risk-taking ability that ultimately negatively affects foreign language proficiency. The researchers point out that the students' personal, social, and academic contexts are negatively affected because of their speaking anxiety. Karla and Siribud (2020) asked students to deliver four speeches during class, and for each speech delivered, students were asked to videotape themselves so they could watch their own performance and trace their own developments. Furthermore, teacher and peer feedback were provided immediately in class after every speech (Karla & Siribud, 2020). Based on the interviews, students considered their lack of knowledge on a particular speech topic in English to be moderately responsible for creating their English speaking anxiety. Furthermore, from the classroom observation field notes, it was observed that overpreparation before speaking in English is valued, though it would lead to some erosion of speech authenticity.

Advice from faculty members and researchers on Public Speaking at the undergraduate level

Recognizing that Public Speaking taught as EFL, ESL, and native-language courses can all provoke anxiety, researchers who research about Public Speaking and faculty members who teach and conduct research on Public Speaking in EFL, ESL, and native-language contexts have written advice in papers from 2016 to 2021, not only on how faculty members can alleviate anxiety (Toubot, Goh, & Abdullah, 2018; Raja, 2017; Meluch & Feehan, 2019; Madzlan, Seng, & Kesevan, 2020; Cosukun, 2017) but also to understand what to look for in students' Public Speaking Anxiety (Kalra & Siribud, 2020; Tee, Joanna, & Kamarulzaman, 2020), how to promote deep learning of Public Speaking skills in the classroom (Saidalyi & Adlina, 2019; Mortaji, 2018), how to provide support outside of the classroom (Fabian 2019), how to provide self-assessment opportunities (Mutlu, 2018), and why more Public Speaking courses should be offered (Wolverton, 2019; Pierini, 2020). The recommendations from literature between 2016 and 2021 will be discussed hereafter.

Suggestions on how faculty members can help alleviate Public Speaking Anxiety

First, suggestions have been made as to how faculty members can alleviate anxiety of undergraduate students when teaching Public Speaking courses (Toubot, Goh, & Abdullah, 2018; Raja, 2017; Meluch & Feehan, 2019; Madzlan, Seng, & Kesevan, 2020; Cosukun, 2017). In the Libyan EFL context, Toubot, Goh, and Abdullah (2018) suggest that faculty members should speak slowly and use simple vocabulary to convey their educational message, emphasizing that students do not have to understand every word, and that they be flexible to the degree that make their students feel comfortable enough to ask questions. In a Pakistani EFL context, Raja (2017) analyzed the reasons behind the anxiety levels of 50 Computer Sciences undergraduate students of a Public Speaking class and found that 75 percent of the participants agreed that with proper counseling, instruction, and coaching, fear can be overcome. Raja (2017) suggests key techniques that can help students overcome Public Speaking anxiety including the need for the instructor to help students realize that being stressful is natural. Raja (2017) encourages students to thoroughly understand the topic

and prepare well, seek feedback from the audience during practice sessions, and acknowledge their success.

In the Turkish EFL context (Cosukun, 2017) and Malaysian EFL context (Madzlan, Seng, & Kesevan, 2020), researchers suggest that utilizing technology in the classroom can alleviate Public Speaking anxiety. Cosukun (2017) investigated the effect of the Pecha Kucha presentation format on EFL language learners' Public Speaking anxiety. Pre and post test experimental research design was used for 49 English Translation and Interpretation Department students attending a state university in Turkey. The study found that students' English Public Speaking anxiety was reduced significantly as a result of using the Pecha Kucha presentation format. Cosukun (2017) points out that Pecha Kucha presentations can be a part of an EFL speaking course and it is favorable to provide students the opportunity to select a topic they would like to talk about to allow for creativity. The researcher notes that while Pecha Kuscha presentations are difficult to be implemented for learners with low proficiency levels, the format can be integrated into upper intermediate level students (Cosukun, 2017). Madzlan, Seng, and Kesevan (2020) in a Malaysian ESL context investigated whether Pubic Speaking Anxiety can be alleviated through the use of online platforms and or video bogs and found based on mixed-method research that video blogs do bring significant outcomes in reducing Public Speaking Anxiety among 54 first year ESL learners and found that the treatment group's anxiety level decreased significantly after conducting video blogging compared to the control group that did not have the video blogging activity.

In the native language context, Meluch and Feehan (2019) examined 233 undergraduate students 18 to 39 years of age at a Midwestern university taking Public Speaking courses and found that the participants rated instructors who disclosed personal experiences of communication apprehension to their classmates as more competent than instructors who did not disclose such information. In addition, participants' open-ended responses suggest that students perceive supportive instructors who share their personal experiences of communication apprehension with the students to be an important resource for students to overcome their communication apprehension. Furthermore, after a review of literature on Public Speaking Anxiety, Meluch and Feehan (2019) found that the following techniques can relieve anxiety: (1) systematic desensitization (i.e., altering the individual's negative association with Public Speaking Anxiety), (2) cognitive modification (i.e., replacing negative appraisals of Public Speaking with positive views), and (3) skills training (i.e., teaching specific techniques such as selecting the correct organizational structure for a speech and ways to improve verbal and nonverbal delivery). Meluch and Feehan suggest that instructors consider sharing private information with students in an appropriate manner and that they be supportive and empathetic when students communicate their communication apprehension to the instructors.

Suggestions for what to look for in students' Public Speaking Anxiety

Current research on Public Speaking (Kalra & Siribud, 2020; Tee, Joanna, & Kamarulzaman, 2020) suggest that if time and the institution allows, needs analysis and speaking proficiency tests should be conducted to support undergraduate students with improving their Public Speaking skills. Researchers in a Thai EFL context, Kalra and Siribud (2020), suggest that teachers should conduct needs analysis of the learners before implementing a Public Speaking course to determine what situations learners will become anxious to speak English. Tee, Joanna, and Kamarulzaman (2020) reviewed existing evidence to understand the

complexities of strategies that university students use to reduce their fear of Public Speaking and nine peer-reviewed studies published between 2015 and 2020 were selected for review from Science Direct and Google Scholar using search terms such as "public speaking anxiety" and "copies strategies." The study found that students who had an intermediate level of English language proficiency and a high level of speaking anxiety adopted both compensation and metacognitive strategies, whereas those who had a high level of English language proficiency and speaking anxiety adopted the affective strategy.

Suggestions on how to promote deep learning of Public Speaking skills in the classroom

Current research on Public Speaking (Saidalyi & Adlina, 2019; Mortaji, 2018) suggest that faculty members consider integrating motivational peer-feedback opportunities in the classroom and promote opportunities for both impromptu and extemporaneous speeches for students to develop their Public Speaking skills. Saidalyi and Adlina (2019) examined Malaysian EFL university students who were taking a Public Speaking course in the southern region of Malaysia and found that most of the online peer motivational feedback were offered for delivery and voice control skills (i.e., 78.3 percent of the feedback) followed by structure of the speech (i.e., 19.2 percent) and language proficiency (2.5 percent). The researchers point out that motivational peer feedback is crucial in a modern web-based learning environment as it prevents students from not participating in class. Mortaji (2018) investigated Moroccan college students' EFL public speaking competency development through extemporaneous speech performance, after implementation of a teaching strategy involving treatment through weekly impromptu speaking sessions combined with individual goal-setting strategy through feedback from the instructor. Mortaji (2018) found that a combination of sustained impromptu speaking and goal setting contributed significantly and effectively to Public Speaking skills development over the course of the semester. Additionally, the instructor's weekly goal-setting strategy played a major role in building speakers' confidence and overall improvement. According to Mortaji (2018), after practicing through three impromptu speaking sessions, the students showed major improvement in the second extemporaneous speech in terms of topic selection, vocal expression, language, word choice, language use, content, organization, delivery, and confidence.

Suggestions on how to provide support outside of the classroom

Fabian (2019) introduces the concept of having a speaking center at Wake Forest University in the United States in which students who have already taken Public Speaking courses at the university assists peers with Public Speaking skills focusing on empathetic listening. Consultants listen to their peers by first asking the question: "What can I help you with today?" Then, the students address any concern that the peers may have regarding Public Speaking to empower their peers. Fabian (2019) points out that any strong speech requires a strong outline, so the consultants' ability to help students who express doubts about their outline become an important part of empowering their peers so that they can deliver their speeches effectively. Fabian (2019) explains that in addition to empathetic listening, the students provide constructive feedback. According to Fabian (2019), consultants found that spending the first five to seven minutes of a 20-minute consultation activity engaging in empathetic listening helped students feel comfortable, before actively looking through the student's outline or prepared speech.

Suggestions on how to provide self-assessment opportunities

Mutlu (2018) investigated students' views on self-assessment in Oral Communication Skills Course at an English Language Teaching Department of a private university in Turkey; and Mutlu's (2018) qualitative analysis yielded both positive and negative responses. Positive responses included: (1) help for future career, (2) fun, (3) personal development, (4) better understanding of assessment, (5) motivation, and (6) self-confidence. Negative themes included: (1) stressful, (2) lack of training, (3) lack of objectivity, and (4) time-consuming. Mutlu (2018) points out that one of the limitations that may have affected the results of the study is the training that students received only for a very short time. Mutlu (2018) suggests that the disadvantageous aspects of self-assessment including the difficulty of being objective and the amount of time necessary can be overcome by training, and that both self-assessment and teacher-assessment should be implemented.

Suggestions on offering more Public Speaking courses at universities

Current research on Public Speaking (Wolverton, 2019; Pierini, 2020) suggest the importance of offering Public Speaking courses from the undergraduate level. Wolverton (2019) distributed a survey for MBA and undergraduate students and the survey results indicate the desire to learn more about how to effectively conduct business presentations in an online setting. Wolverton (2019) points out that teaching students skills to improve their Public Speaking ability in online settings can better prepare graduates for career success in the digital age. Furthermore, Wolverton (2019) underscores the research result that graduate students who tended to have more professional work experience were more likely to recognize the importance of effective online communication and were more likely to express a desire to learn more about conducting online presentations. At the same time, the researcher notes that students have not been adequately prepared to effectively conduct a business presentation in an online setting. In another study, Pierini (2020) conducted a case study of EFL postgraduate students attending a Public Speaking course in which the author taught at the University of Genoa in Italy and found that speaking English in public was a weakness that most students in class acknowledge based on an original survey. Pierini (2020) further notes that Public Speaking practice allows students to gain confidence in English and communicating in public.

Effective Public Speaking instruction based on literature review

Based on literature from 2016 to 2021, there are three phases in which administrators at universities in Japan and faculty members can think about when considering implementing an EFL Public Speaking course as part of their institutional curriculum.

Phase I: Administrative consideration for incorporating a Public Speaking course

The first phase is preparation that the university administrators need to consider, and relates to the question: "Should our department include an EFL Public Speaking course as part of our curriculum considering: (1) the benefits of Public Speaking for students such as alleviating anxiety (Toubot, Goh, Abdullah, 2018; Kalra & Siribud, 2020) and preparation for their future careers (Wolverton, 2019; Pierini, 2020) and (2) current availability of study abroad programs that might connect to practical use of the skills acquired in the Public Speaking course after taking the course (Lyons, 2017)?

Phase II: Faculty members' preparation in designing their Public Speaking course

After deciding to implement a Public Speaking course if not already implemented in the curriculum, the second phase would be preparation for faculty members before they start to teach a course on Public Speaking. There are seven questions that can be asked based on literature review when they make their syllabi for a Public Speaking course. First, how large of a class can I expect to teach for the upcoming academic year (Yamashita & Fuyuno, 2019; Daud, Chowdhury, Mahdum, Mustafa, 2020)? Second, should I and can I conduct needs analysis (Kalra & Siribud, 2020) of the students in my Public Speaking course before or during the first session to get an idea of their level of anxiety towards Public Speaking and to understand their language proficiency (Tee, Joanna, Kamarulzaman, 2020), particularly speaking? Third, how would my personality and experiences with teaching influence the way I set up my syllabus (Walton, 2018)? Fourth, based on my knowledge and experience with the use of technology in the classroom and the students' levels of Public Speaking Anxiety and proficiency, how should I incorporate technology (Cosukun, 2017) to facilitate students' learning of Public Speaking skills? Fifth, how many impromptu and extemporaneous speeches should I include in my syllabus (Mortaji, 2018)? Sixth, what speech topics should I have students work on considering the students' levels of proficiency (Tee, Joanna, Kamarulzaman, 2020), their interests and background knowledge of various topics (Walton, 2018), and the availability of study abroad programs (Lyons, 2017) and student support centers (Fabian, 2019)? Seventh, should I provide students self-assessment opportunities (Mutlu, 2018)?

Phase III: While teaching a Public Speaking course

While teaching the Public Speaking course, there are three questions that faculty members can consider, based on literature review. First, what feedback is motivating and constructive for each of my students attending class (Pontillas, 2020)? Second, how slowly and simply should I speak in class to convey my educational message to my students in a comprehensible manner (Toubot, Goh, & Abdullah, 2018)? Third, how can peer-motivational feedback be encouraged in class (Saidalvi & Adlina, 2019)?

Conclusion

This paper attempted to identify the best practices for teaching Public Speaking for Japanese EFL undergraduate students through a literature review of papers published between January 2016 and April 2021. Based on literature review, it is safe to acknowledge that there is a scarcity of research in any country (e.g., Japan) to pinpoint precisely how to teach Public Speaking effectively within each country. Therefore, more case studies in the Japanese EFL context for Public Speaking courses are needed to deliver a more culture-specific recommendation. However, the most valuable conclusion drawn from this literature review lies in identifying what considerations administrators and faculty members around the world can make to implement or continue to implement a strong Public Speaking course at their own institutions.

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***Information and Communication Technologies Use of Parenting in
Early Childhood in the Pandemic Era: Benefits, Risks, and Implications***

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Abstract

The COVID-19 pandemic outbreak poses serious challenges to traditional parenting practices. ICT-assisted parenting, in which parents seek information, make connections, and participate in intervention programmes, is receiving increased attention. Global studies indicate that online parenting is beneficial for children's cognitive, emotional, and behavioural development, as well as for parent-child interactions. Despite this, there remains a research gap in portraying ICT use among parents of children aged 3 to 6 during and after the pandemic epidemic. Four databases were searched to identify six original research publications published between 2020 and 2022 (ProQuest Centra, Elsevier Science Direct Journals, PsycINFO and ERIC). The three major forms of ICT use in parenting were identified: information-centric, communication-centric, and intervention-centric. All three types of activities are beneficial to parental activities, particularly in terms of reducing parental stress and increasing parental confidence during the lockdown. Given that post-pandemic parental ICT use research is still in its infancy, future research should concentrate on parenting intervention groups, including rigorous quantitative study designs with controlled groups. Guidelines and strategies should be issued to facilitate and ensure the quality of information dissemination. Furthermore, a home-school partnership that incorporates online parenting into the communication agenda is desirable.

Keywords: Parenting, ICT, COVID-19, Online Parenting, Social Media, Parenting Intervention, Parenting Resources

1. Introduction

Limited access to parenting support during the COVID-19 pandemic has become a crucial issue. (Sherr et al., 2022; Tomlinson et al., 2022). The lockdown, school closures, travel restrictions, and limited access to medical services had a substantial impact on parents, especially in families with special needs (Wisen-Vincent & Bokoch, 2022). According to the United Nations Educational, Scientific, and Cultural Organization (2020), 1.38 billion children were denied access to school or childcare because of the COVID-19 virus. Parents and caregivers were compelled to work fewer hours or from home with children (Tomlinson et al., 2022). Social isolation, infection anxiety, economic stress, fatigue, and caregiver burden led to a significant increase in parental stress, depression, and other mental health problems (Perks & Cluver, 2020). Prolonged exposure to traumatic stress increases the risk of strained parent-child relationships and child abuse in families (Wu & Xu, 2020). This is an urgent crisis that necessitates the development of effective alternatives by the government, policymakers, and educators when traditional methods of providing parenting support are obfuscated.

Parents, being children's first teachers, have a profound impact on children's development (Baker, Sanders, & Morawska, 2017). Literature supports the positive relationship between active parental involvement and academic achievement in children, whereas insufficient parenting has been linked to aggressiveness in adolescence and juvenile delinquency (Madge & O'Connor, 2004). Positive parenting practices have both short-term and long-term benefits for children's behavioural and emotional development, such as boosting self-esteem, reducing depression, and alleviating trauma (Cheun & Pomerantz, 2012; Morgan et al., 2017). Multiple parenting programmes (e.g., Positive Parenting Program [PPP] or as Triple-P Program) are shown to improve parent-child relationships, reduce caregiver stress and abuse during discipline, and improve child and caregiver mental health in a variety of demographic and socioeconomic settings (Breitenstein et al., 2014; Franke et al., 2020; Wisen-Vincent & Bokoch, 2022).

ICT (Information and Communication Technology) is deeply interwoven in people's daily life. ICT refers to Internet-capable electronic devices such as laptops, tablets, and smartphones, as well as their software and applications (Na & Chia, 2008). China has 989 million Internet users in 2020, with a population penetration rate of 70.4% (China Internet Network Information Center, 2021). Parents increasingly rely on ICT for parental support and solutions. Walker and Rudi (2014) discovered that more than 25% of mothers in the United States searched for parenting information daily. Bakers et al. (2017) surveyed 459 Australian parents of children ages 2 to 12 and found that the majority of parents utilise parenting websites (65%) and social media (45%) for parenting information. Online relationships with other parents are valued by parents as a important venue to develop community, exchange social support, share information, and gain a better understanding of the parenting experience (Hall & Irvine, 2009; Madge & O'Connell, 2004). Similarly, in China, young parents with children between the ages of infants and preschoolers are increasingly turning to social media for guidance to navigate this life-altering transition (Gao, Jiang & Yang, 2021). According to the "China Parenting Report under COVID-19" published by China's professional parenting platform, the daily activity of parenting online communities increased by 22% year over year during COVID-19, while the number of online consultation services increased by 50.58 % (Yuer, 2020).

According to previous research and reviews, there are three distinct types of ICT activities: information-centric, communication-centric, and intervention-centric (Nieuwboer, Fukkink & Hermanns, 2013; Walker & Rudi, 2014; Breitenstein et al., 2014) (See in Figure 1). When seeking parenting information, parents frequently visit websites (Nieuwboer et al., 2013). Social media platforms are popular when seeking social support (Daneback & Plantin, 2008). Emails and video/audio meetings are reported to predominate at online interventions. (Nieuwboer et al., 2013). Notably, these channels may overlap; for instance, parents can access information on Facebook pages, and some parental websites offer interactive discussion forums (Haslam & Baker, 2017). It has been reported that parents engage in multiple ICT activities simultaneously (Nieuwboer et al, 2013; Baker et al, 2017; Daneback & Plantin, 2008). For example, parents seeking information about children's illness will use search engines to skim the information. To validate their findings, parents post on message boards or read comments below relevant posts. Depending on their Internet proficiency and level of preparedness, some parents join parenting groups. In the subsequent phase, if interventions are required, they can be obtained via email consultations or therapy sessions conducted online.
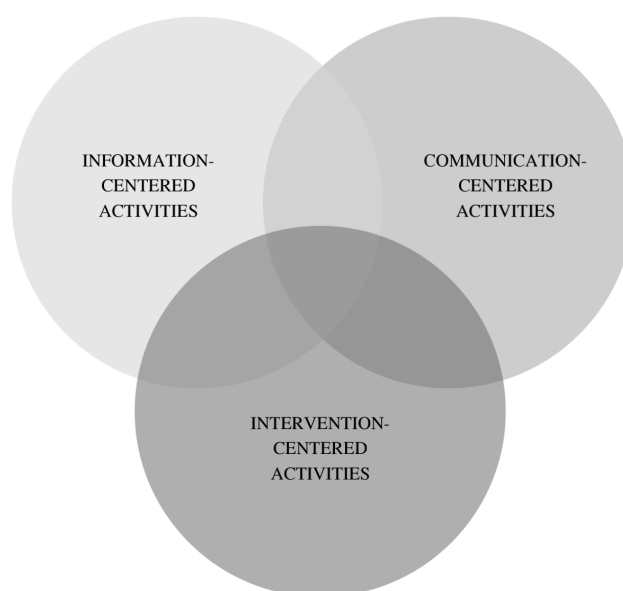
Figure 1 Diagram of ICT Activity Types for Parenting

The impact of the COVID-19 pandemic is pervasive and long-lasting, significantly altering the landscape of parenting. The transition of parenting from traditional print or in-person to ICT-based methods is anticipated (Gao et al., 2021). Recent research has shown that online parenting holds promise for increasing access to information and is an effective way to teach parents behaviour management skills (Spencer et al., 2020). Despite this, there is a dearth of critical reviews of research on the use of ICT by parents of children during the COVID-19 pandemic. Few studies categorised ICT activities serving the general population into clear-defined subgroups. The purpose of this paper is to examine the recent findings of ICT use in early childhood parenting during the COVID-19 pandemic. We examine the benefits, risks, and implications of current practices in an effort to provide critical insights into the future application and evolution of online parenting.

2. Method

2.1 Literature Research

The study employed four inclusion criteria to acquire relevant publications (See in Table 1). First, we located research on online parenting by searching four databases (ProQuest Centra, Elsevier Science Direct Journals, PsycINFO and ERIC). We identified four root concepts as keywords that should appear in publications simultaneously: internet, parenting, early years, and COVID-19. According to the extensive terms identified, further research was also undertaken (See in Table 2). The outbreak of COVID-19 was declared as Public Health Emergency of International Concern by the World Health Organization on January 30, 2020, and a pandemic on March 11, 2020. Therefore, studies published between January 2020 and September 2022, when this article was written, were included. Finally, we limited our research to English-written and original research articles published in peer-reviewed journals. Literature Review is excluded due to the precision and depth of the data.

Table 1 Inclusion Criteria

Inclusion Criteria	Description
I1	Articles from ProQuest Centra, Elsevier Science Direct Journals, PsycINFO and ERIC
I2	Articles containing all KW1-4 including their extensive terms
I3	Articles published between January 2020 and September 2022
I4	Original research articles published at peer-reviewed journals and written in English.

Table 2 Search Terms for Inclusion Criteria

Code	Root Terms	Extensive Terms
KW1	Online	*ICT; Internet; Social Media; App; Websites*
KW2	Parenting	*Parental; Parents; Parental/Parenting Support; Parenting Programs/Interventions; Parental/Parenting Resources*
KW3	Early Years	*Children; Early Childhood; Preschool(ers)*
KW4	COVID-19	*Pandemic; Coronavirus*

2.2 Literature Selection

Using the inclusion criteria, the initial literature search identified 3608 studies (See in Figure 2). Inclusion criteria were then applied to refine the selection, and duplicates were deleted. 284 articles passed the second filter and proceeded on to title and abstract evaluation manually. Irrelevant items, such as parental stress, newborn health concerns, and pregnancy, were eliminated, leaving 34 articles. By manually examining the full texts of 34 articles, their eligibility was determined. Finally, four articles that fulfil all inclusion requirements and are pertinent to the topics were chosen. During the full-text review, two additional relevant papers were added. In total, six articles were selected as the final reviewable articles.
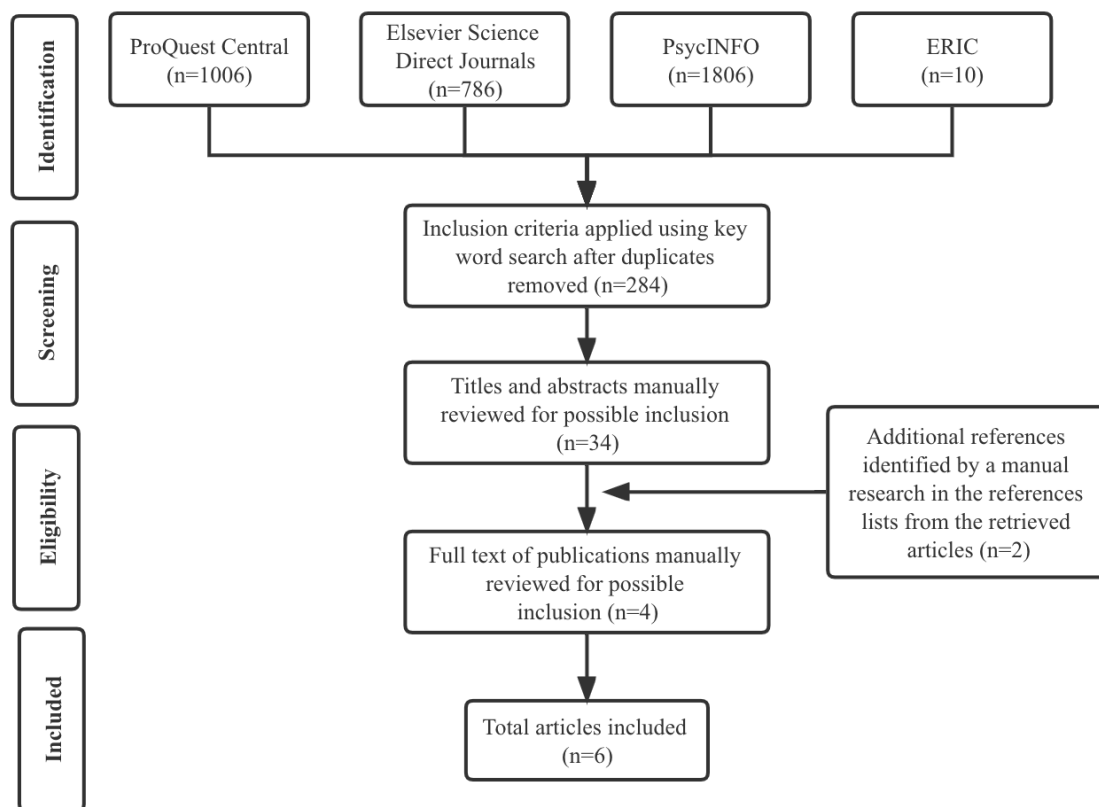
Figure 2 Diagram of Literature Selection Process

2.3 Literature Analysis

Included articles were reviewed and organised according to the three broad themes: information-centric, communication-centric, and intervention-centric activities. A spreadsheet was constructed to collate data on the research topic and key findings (See in Table 3). We arranged studies in rows and established columns for the study's basic information, themes, research aims or questions, research design, and key findings. Using the spreadsheet, we were able to visually examine researchers' interest in particular topics during the COVID-19. Then, we grouped papers with comparable themes together in order to compare them across various perspectives. Throughout this process, we identified specific research interests that emerged within each theme. In a subsequent section, the benefits, risks, and implications are discussed in detail. We also examined the limitations of these studies, which calls for future research.

Table 3 Descriptive Information of the Included Studies

Author/Year	Article Titles	Themes	Research Aims/Research Questions	Research Design	Main Findings
Lasecke et al., 2022	Disseminating online parenting resources in the community during the COVID-19 pandemic: Lessons learned	Information-tric	How does the use of dissemination strategies in an online parenting programme affect parental participation?	Quantitative Correlational; Data of clicking and attendance	Findings suggest a positive association between the number of dissemination strategies and parental involvement. a) The most dissemination strategies received schools had the highest number of attendees and the greatest ratio of attendees by strategies. b) The use of dissemination strategies is positive associated with the number of clicks for the online Everyday Parenting course.
Sherr et al., 2022	Tipping the balance – an evaluation of COVID-19 parenting resources developed and adapted for child protection during global emergency responses	Information-centric	What are parents' perspectives on whether parenting resources at scale are feasible and beneficial to parents in various settings under COVID-19 constraints?	Qualitative; Surveys and interviews	Findings show that rapid provision of parenting resources at scale is feasible under COVID-19 constraints and beneficial for parents across different settings. a) Parents reported that the online resources were perceived as a welcomed additional source of support. Many parents felt the tips were particularly helpful by providing ideas on control, pausing, thinking, and introducing routines. b) The timeliness of the resources was perceived as a significant factor, as they were released early in the pandemic which allowed parents in need to have quick access to support and facilitators. c) The online format of the resources increased the reach as it was available anywhere to anyone with access to the internet.
Zhao & Ju, 2022	How do Internet moms raise children? The reshaping of Chinese urban women's parenting psychology by COVID-19 online practices	Communication-centric	How is the changing impact of Internet-based parenting practises on the daily lives of Chinese urban mothers during the COVID-19 pandemic?	Mixed-methods; Observations and interviews	Findings suggest that, during the COVID-19 global pandemic, Chinese urban women shifted their parenting practices to the Internet. a) Online parenting communities make urban mothers' psychological shift from traditional experience to scientific parenting. b) This online parenting practice during the pandemic allowed them to accept their role as "Internet moms" with a positive mindset. They are observed to be more proactive in learning and sharing parenting knowledge, as well as expressing themselves through the Internet.
Tomlinson et al., 2022	Lessons for a COVID-19 era: Barriers and facilitators to court ordered online parenting programs for divorcing and separating parents	Intervention-centric	What are the barriers to and facilitators of parent participation in court-ordered online parenting programs during family law cases?	Qualitative; Interviews	Findings suggest that many parents viewed online parent programs positively (e.g., convenient), they also reported barriers to participation (e.g., technology problems). a) All parties (100%) who participated in a program viewed the program positively, felt the program was helpful, and reported that they enjoyed the quizzes and videos. b) Other than access to technology, some parents noted the programs were inconvenient because they

3.   Discussion

3.1 Information-centric Activities

3.1.1   Benefits, Risks, and Implications

In response to the demand for easily accessible and practical parenting advice during the lockdown, governments and other organisations, such as the WHO, UNICEF, and World Childhood Foundation, have made reading materials, broadcasts, and videos available online (Lasecke et al., 2022; Sherr et al., 2022). According to the findings identified, it is feasible to conduct rapid distribution parenting materials on a broad scale within COVID-19 restrictions and beneficial for parents from a variety of backgrounds (Sherr et al., 2022). Parents were appreciative of the resources' timeliness, low cost, and convenience of use (i.e., parents can download resources for numerous uses at no cost). As the process of widespread distribution of online resources during the epidemic, researchers became interested in the dissemination strategies. The dissemination strategies refer to how information is delivered effectively and efficiently to parents and educators (Bernhardt & Felter, 2004). Due to the enormous amount of information available online, an increasing number of respondents revealed the difficulties of locating relevant resources, organising multiple resources, decoding and utilising specific online resources (Lasecke et al., 2022). Parental involvement with online resources could be greatly altered by the application of proper dissemination strategies (Bernhardt & Felter, 2004; Plantin & Daneback, 2009). Immigrant parents valued resources offered in various languages (such as English, Chinese, and Spanish). Providing a variety of distribution forms (emails, newsletters, and live presentations, for example) and employing a pictorial visual design were also favourably associated with view counts (Lasecke et al., 2022). Schools' and parents' opinions should be considered to improve the efficacy of disseminating information.

Notably, Sherr (2022) reported parental interests in integrating interactive components into online resource platforms. Parents who were interviewed remarked that there was rarely a section on websites where they could provide feedback on the advice presented, as well as commenting on results regarding specific cases or age groups. According to researchers, introducing interactive elements could be especially beneficial for parents who feel alienated and/or are unable to access their normal sources of support (Plantin & Daneback, 2009). Thus, the possibility of integrating information-centric and communication-centric activities should be addressed. More parents would benefit if they could tailor their experiences to their specific parenting needs. Additional research is required to investigate the relationship between dissemination strategies and parental involvement with online parenting resources. It is considered that identifying the appropriate ways for distributing online resources would contribute to the effective application of online resources, hence benefiting children's development.

3.1.2   Limitations

The research design of current studies, particularly the data collection, could be refined. In Lasecke at al.'s research (2022), early enrolment data is missing, and participants are not followed, making it difficult to track the dropout rate and the number of parents who engage throughout the programme. Consequently, the reported participation data were imprecise. In addition, due to the quantitative design of the study, no input from parents was obtained; the direct participation of parents could provide a more in-depth understanding of the success of resource dissemination. Sherr et al.'s research (2022), on the other hand, included extensive

and systematic interviews with parents. Whereas, the sample size was rather small, with only 1–2 interviews from each eight nations. Due to the underrepresentation, perspectives on online parenting tools may be skewed.

3.2 Communication-centric Activities

3.2.1 Benefits, Risks, and Implications

Parents can share their experiences in online groups to confirm their ideas, anticipate child-rearing challenges, and get reassurance that their children's behaviour is regarded as normal (Duggan et al., 2015). Parents also receive timely feedback and assistance, particularly in instant messaging parental groups (Walker & Rudi, 2014). Some parents may encounter challenges that are unusual in their social circles, such as Autism (Lee & Sullivan-Bolyai 2011). They find it easier to seek advice from others online who have overcome similar obstacles, and those parents may be in a better position to provide consistent support (Haslam & Baker, 2017). Anonymity is another benefit of online parental support. Parents are more comfortable seeking support online in anonymous or hidden parenting forums, according to interviews with families who have experienced difficult life events such as the death of one of their siblings (Gao et al., 2021).

Parental stress and depression have been shown to be reduced significantly when parents use online communication and connectivity to provide emotional and social support (Haslam et al. 2006). Parents feel supported simply by reading the experiences of others even if they do not post or interact (Haslam & Baker, 2017). Knowing other parents experienced similar frustration about leaving their kids to day care is observed to release young working mothers' level of stress (Haslam et al. 2006). These findings are confirmed by Zhao and Zhu (2022) at their qualitative study of impact of Internet-based parenting practices on Chinese urban women during the COVID-19 pandemic. Moreover, the internet community might contribute more fundamental and long-term influence at reshaping women's view of being a mother. Researchers suggest that virtual parental communities, creating a new platform for information empowerment and mutual support, promote the parental confidence and a more independent image of self (Gao et al., 2021; Zhao & Ju, 2022).

Nonetheless, social media platforms such as Facebook have limited quality control measures. As reported by many researchers, the majority of information available at parenting communities were maintained by individuals or self-help groups (Eysenbach et al., 2002; Walker, Dworkin & Connell, 2011; Zhao & Zhu, 2022). These information and support provided have possibly fewer resources to enable them to uphold the quality of the information (Duggan et al., 2015). Furthermore, many parenting groups and parenting influencers on social media, as indicated by Zhao and Zhu (2022), earn profits by integrating sections for selling parental goods or ads, raising suspicions about their motivation. Legislative conduct guidelines and monitor should be published to ensure the transparency and integrity of information released on these platforms. Moreover, online parenting communities, as noted by Wartella et al. (2013), could reversely provoke parental stress through peer pressure created by members in community. For example, some parents reported that they worried more about their children's competency in learning via comparison with other parents at their Facebook parenting groups.

Therefore, the paper contends that that government and professional institutes should provide appropriate guidance. To begin, the government can exert influence on both suppliers and

receivers through enacting regulations and legislation to control platforms, as well as publishing guidelines or official websites to facilitate parental use (Eysenbach et al., 2002). Preschools and nurseries can also actively increase home-school partnerships, such as by conducting lectures on how to find reliable information and support online. Teachers should also be aware of the prevalence of ICT use among parents, actively approaching parents and providing support if necessary. Finally, parents are encouraged to self-educate themselves before employing ICT in parenting. This can be done by asking questions like "Is there someone profiting from this information?" or "Does it come from a trustworthy organization or source?" (Duggan et al., 2015). Furthermore, it is seen to be prudent to weigh responses by utilizing numerous ICT activities across multiple platforms. If the information can be verified by other parents on social media and validated by numerous independent platforms, the validity of the information improves (Walker et al., 2011).

3.2.2   Limitations

Only one study is identified related to communication-centric ICT use at this paper. It is evident that more research is required to investigate more about how the engagement with virtual parenting groups influence the parenting outcomes. As indicated by Zhao and Zhu (2022), future research should pay attention to collecting empirical data from the perspective of other members of the family, as well as comparing urban mothers with other family members. Aside from this, there is little research including the direct observation of parenting activities even prior to the pandemic. The dominant research tools employed to collect data are survey or interviews of parents, which make the whole picture missing the voice of children as well as a more objective account of what is exactly happened in practice. More qualitative research could be conducted to provide rich account of how parents communicate, especially how information is transmitting and its influence in real life.

3.3 Intervention-centric Activities

3.3.1   Benefits, Risks, and Implications

During COVID-19, two studies related to intervention-centric parenting activities utilising ICT were identified. Participation in online parenting interventions may result in improvements in three distinct areas (Tuntipuchitanon, 2022; Wisen-Vincent & Bokoch, 2022). First, online intervention programs, such as Triple-p/PPP, are associated with better social, emotional, and behavioural outcomes for children. Second, online parenting interventions can make a statistically significant positive impact on parenting knowledge and strategies. Moreover, parents' confidence in themselves also significantly rises after the programs. Finally, the improvement of relationship between parents and children was observed, especially the occurrence of positive interactions increased, and negative interactions significantly decreased compared with prior of the intervention.

Notwithstanding, taking a close look at these interventions, what in common is that the involvement level was relatively low, and the attrition rate was relatively high compared with traditional on-site interventions. Based on the identified studies, this paper contends that it might be due to the loop of learning-application-feedback was not yet rigorously formed at online programs (Na & Chia, 2008). For example, both interventions are mainly delivered in passive video-watching. These videos are pre-recorded, and fewer specific instructions were given based on individual cases. More importantly, rarely any feedback was given to parents during nor after their application of acquired strategies. Parents were not encouraged to ask

questions or involved in discussion enough to involve deep insights, thus parents were less motivated compared with on-site participation (Wisen-Vincent & Bokoch, 2022). Therefore, there are two directions of implications emerging from the existing research. First, the delivery of the content should be more interactive. Live lessons are preferred with real instructors present, where parents and children can present together and receive individualized support. Secondly, feedback should be sought, and questions should be answered in time during and after the interventions to ensure the sustainable support to parents.

3.3.2   Limitations

Due to the on-going lockdown and restrictions of the pandemic, both studies had relatively short period time of intervention (Tuntipuchitanon, 2022; Wisen-Vincent & Bokoch, 2022). In addition, their sampling strategies are less elaborated with relatively homogenous or small size of participants. Notwithstanding, what is most noteworthy is that these studies lack direct comparison with on-site intervention groups. Previously, the online parenting interventions were reported less effective compared with on-site groups due to the high rate of attrition (Melville, Casey & Kavanagh, 2010). However, the situation has changed critically after the pandemic because parents have limited choice but to attend online. It is also indicated by researchers that parents' belief towards online intervention has also changed towards a positive direction (Tuntipuchitanon et al., 2022). In addition, other than PPP, program such as PlayStrong Neuro-Filial Parenting Program has also demonstrated high competency in improving child behaviours, parent–child relationship quality, and parenting strategy use (Wisen-Vincent & Bokoch, 2022). The comparison between different programs might be beneficial in improving the overall design of online intervention programs.

4.   Conclusions

This narrative review provided a critical analysis of six original studies conducted between 2020 and 2022 on the benefits, risks, and implications of parental ICT use during the COVID-19 pandemic. There are three distinct types of parental ICT activities identified: information-centric, communication-centric, and intervention-centric activities. Although relatively fewer research on this important topic have been discovered, this article aims to present cutting-edge and critical insights regarding ICT use in early childhood parenting, particularly in the post-pandemic era.

This analysis demonstrates that the use of ICT during the pandemic is practical and advantageous for parents with young children in all three types of activities. Online resources provide rapid and low-cost access to essential and practical parenting information. Connecting with online parenting communities was also reported to reduce the stress level of parents and build parental confidence. During the lockdown, virtual communities, such as social media platforms, provide timely parental support by exchanging parenting information and strategies. Due to the stringent control of in-person communication during the pandemic, researchers found that an increasing number of parents prefer online parenting and are adjusting their parental roles to the virtual world. Thirdly, online parenting interventions were perceived to have expanded their influence during the pandemic and were anticipated to help a greater number of children who have difficulty accessing on-site interventions. In addition to well-known PPP programmes, more interventions, such as the PlayStrong Neuro-Filial Parenting Program, have been adapted for online delivery and reported to improve parenting results.

Researchers highlight requests for the addition of interactive components and the expansion of the dissemination of online resources for information-centric activities. In order to safeguard parents from erroneous and biased information, it is anticipated that regulations and policies would be issued regarding the authenticity and transparency of material given on online parenting networks. Online and traditional parenting communities can collaborate to provide more comprehensive support, with educators and schools providing information or training sessions on utilising online resources critically. Also significant is the fact that online parenting treatments are still in their infancy. Compared to on-site programmes, the dropout rate is relatively high, and the degree of participation is comparatively low. Researchers hypothesised that this is because the design of current interventions does not actively involve parents in the learning process. In addition, less feedback and tailored instructions were provided compared to interventions conducted on-site. Future online interventions should therefore include incorporating interactive portions where parents can discuss concerns with practitioners and receive personalised feedback following the practise of interventions.

Although the review was committed to including all important original research in this field, it is not a systematic review in concept and execution. Given the rapid development of ICT use in parenting in the post-pandemic era, systematic reviews of this topic are preferred. Moreover, literature review with focused type of activity, such as online intervention, is believed to add in-depth insights to the field's practice. Overall, more research could be conducted to study the use of ICT in parenting in early childhood settings in response to COVID-19. This review intends to inspire confidence in continuing to invest in research in this sector by critically examining both advantages and dangers and, as a result, producing future implications.

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The A-B-C of Engaging Students With Feedback to Build Resilient Learners

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Abstract

Resilience was once thought of as a stable personality trait. However, it is now argued that resilience is malleable, subject to environmental factors such as assessment feedback (ahmed Shafi, Hatley, Middleton, Millican & Templeton, 2017). This paper presents a longitudinal study on how learners experienced and were affected by feedback to their written essays. Participants comprised 45 students (aged 14-15) from 5 secondary schools. Qualitative data was collected from examination of their written work, classroom activities as well as student interviews. Bandura's (2001) model of triadic reciprocity was used as a guiding framework to analyse how the teachers' feedback practices influenced their students' self-efficacy and behaviour. The findings fleshed out how students engaged with their teachers' feedback on various levels: affectively (referring to students' emotions towards teachers' comments), behaviourally (seen in their uptake of feedback), and cognitively (in terms of their processing, attention, recall and understanding of feedback). Further analysis revealed two themes of will (as in motivation to take action and volition to persist) and skill (as in strategies and knowledge) to follow up on the feedback. The implications of these findings will then be discussed in relation to strengthening teachers' feedback practices as a whole and with particular focus on how these practices are important in building resilient learners.

Keywords: Formative Feedback, Academic Buoyancy, Engagement, Resilience

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Introduction

Schools have always aspired to develop learners' social emotional competencies. One such desired competency is resilience, a quality recently singled out for schools' attention by Organisation for Economic Co-operation and Development (OECD) (Agasisti, Avvisati, Borgonovi, Longobardi, 2018). This emphasis is not surprising given the uncertainties of growing up in the challenging times of COVID-19 pandemic. At the same time, schools may also face pressures to deliver on academic results because of accountability defined as "the monitoring and use of student performance data to make judgements about school and teacher effectiveness" (Jerrim & Sims, 2021, p.1).

This paper presents the view that focusing on academic performance does not have to come at the expense of the learner's social emotional development. Drawing upon a longitudinal study of 45 students (aged 14-15) from 5 secondary schools, the paper proposes how teachers' feedback practices can influence their students' self-efficacy and behaviour for the better. These recommendations have been arrived at after analysing qualitative data that was collected from examination of their written essays, classroom activities as well as student interviews.

The following sections will start with defining the two key constructs: resilience and student engagement with feedback in three aspects: the affective (referring to students' emotions towards teachers' comments), behaviour (seen in their uptake of feedback), and cognitive (in terms of their processing, attention, recall and understanding of feedback). It will also elaborate on how Bandura's (2001) model of triadic reciprocity was used as a guiding framework to analyse how students engaged with their teaches' feedback on various levels. These findings and their implications contribute to an under-explored area of how teachers' practices can help nurture resilience among students at a formative stage in their lives.

Literature Review

Resilience

Resilience has been variously described as "the capacity of individuals to prosper despite encountering adverse circumstances" (Agasisti et al., 2018, p.4), "maintenance of positive adaptation by individuals despite experiences of significant adversity" (Luthar, Cicchetti, & Becker, 2000, p. 543). or "a dynamic process that involves positive adaptation in the intense adversity situation or the ability of people to resist in the face of adversity and adapt to their setting" (Zhang, 2022, p.2). What is common is that resilience is no longer thought of as a stable personality trait but rather a multi-dimensional quality influenced by many factors including context (Connor & Davidson, 2002). As such, it is malleable, subject to environmental factors such as assessment feedback (ahmed Shafi, Hatley, Middleton, Millican & Templeton, 2017). One study found that when teachers gave duty-comforting feedback (that it is OK as long as student has tried) helped students to persist despite failure. In contrast, ability-comforting feedback (that math failure is OK because not everyone is a 'math person") resulted in students giving up and changing course (Fwu, Yang, Chen & Chen, 2022).

For the purposes of this paper, resilience is scoped to refer to capacity to overcome minor setbacks in school such as a low grade. Martin, 2013, refers to this as academic buoyancy defined "as a capacity to overcome setbacks, challenges, and difficulties that are part of

everyday academic life" (p. 488). It is distinct from adaptive coping (Putwain, Connors, Symes & Douglas-Osborn, 2012) and predicts positive academic outcomes, specifically enjoyment of school, class participation, and general self-esteem (Martin & Marsh, 2006). It is in turn is predicted by factors such as self-efficacy, planning and persistence (Martin, Colmar, Davey & Marsh, 2010). As such, interventions include planning lessons that "maximize opportunities for success" and enhancing students' planning and persistence through goal setting (Martin et al., 2010, p. 489).

Feedback

As in the case of resilience, our understanding of feedback has evolved over the years. It was once thought to "information given to individuals or groups about their own performance" (Wiliam, 2018, p. 5). It was didactic in nature, with little consideration of the student on the receiving end. In contrast, the current focus is on dialogic feedback with the emphasis that the feedback is for learning and that the learners need to take more of an action-orientated stance to responding to feedback (Dawson, Henderson, Mahoney, Phillips, Ryan, Boud, & Molloy, 2019). This active involvement of the student is encapsulated in the definition of feedback adopted for this paper: "Any information about a performance that a learner can use to improve that performance or grow in the general domain of the performance" (Smith & Lipnevich, 2018, p. 593).

Like resilience, students' engagement with feedback is complex and multi-dimensional (Beaumont, O'Doherty & Shannon, 2011; Dann, 2018; Esterhazy and Damsa, 2019; Nicol, 2010). Afterall, students "differ in their capacity and willingness to use feedback" (Jonsson & Panadero, 2018, p. 549). A good starting point to understanding the phenomenon is to define the various aspects of students' engagement with feedback: the affective which refers to how teachers' comments affect student emotions, the behavioural which refers to students' actions upon receiving feedback (e.g. taking steps to correct or seek help) and the cognitive which refers to how students process the feedback (Winstone & Lipnevich, 2020).

The extant literature on the effect of feedback on students largely focusses on the type of teacher feedback on student behaviour and output (Ferris, Liu, Sinha, & Senna, 2013; Nicolás–Conesa, Manchón, & Cerezo, 2019; Shintani & Ellis, 2013). The affective and cognitive aspects of student engagement with feedback are under-explored. One study that explored this gap was Millican, ahmed Shafi, Templeton and Middleton (2020) which examined undergraduate students' reactions to changes in tutor practices (e.g., feedback sheets with explicit comments on strengths and recommendations, and opportunities for dialogue with the tutor). It concluded that to help students cope with disappointing grades, students needed assessment literacy which involves an "understanding the grade to include interpreting assessment and feedback within the context of its purpose, the assessment criteria and the grading" (p.142).

However, like many others in current literature of the effect of feedback, the above-mentioned studies used student self-reports (Beaumont et al., 2011; Dann, 2018). The limitation of such an approach is that there is no complementary data to verify what students said.

Framework to link student engagement with feedback to resilience

In the study of undergraduate students cited earlier, the researchers concluded that effective feedback that helps students cope with academic disappointments would have the following characteristics:

(a) Clearly recognises effort and achievement and encourages the student to take responsibility for the work and the grade given, rather than look for external reasons and excuses;

(b) Provides a clear indication of why the grade was given against explicit criteria and grade descriptors;

(c) Makes reference to the assessment not standing alone, but being part of a larger project;

(d) Provides concrete suggestions as to things that could be developed and improved in future assessments;

(e) Makes suggestions as to actions that could be taken to assist these developments and improvements (ahmed Shafi, Hatley, Middleton, Millican, & Templeton, 2017, p. 424).

However, it is not clear if these apply to younger learners who may lack the wherewithal to act on the given feedback. Also, the writers did not make make clear the theory that undergirded their interpretation of effective feedback and how that latter is linked to resilience.

This paper proposes adopting Bandura's triadic reciprocity theory (2001) which posits that our behaviour is influenced by and in turn influences the environment and personal factors. As applied to the link between teacher feedback and students' resilience, this theory can help examine the interaction among students' behaviour (e.g., act on feedback or give up), personal factor (e.g., feel efficacious or hopeless), and environment (teachers' feedback practices) as shown in Fig. 1. The bi-directional arrows show the complex interaction among the three factors involved.

Figure 1: *Applying Bandura's Triadic Reciprocity Theory to Link Resilience to Student Engagement with Feedback*

Behaviour
Actions and Decision
e.g., whether a person bounces back after failure

Personal
Characteristics
e.g., self-efficacy

Environment
e.g., Teacher
feedback
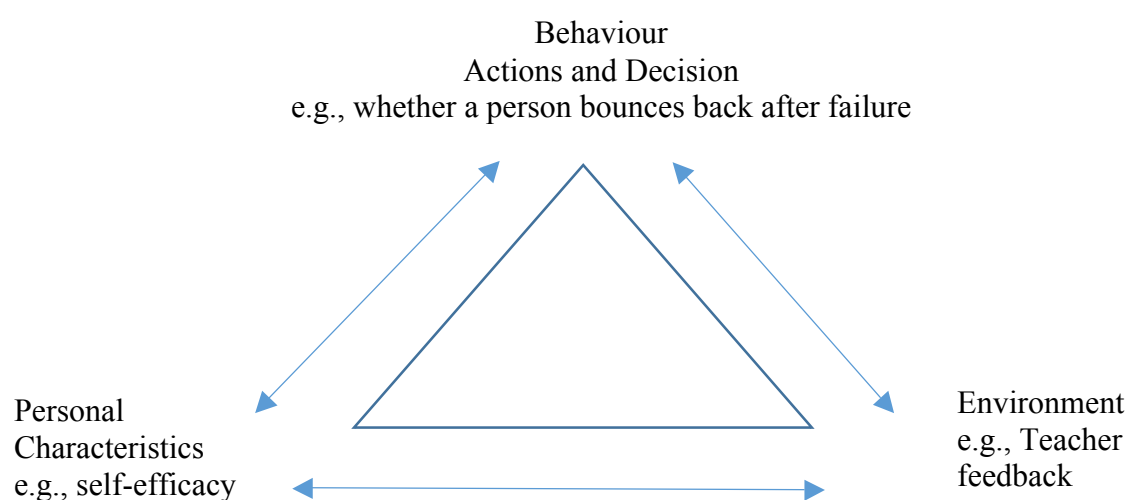
Significance of study

In summary, research so far suggests that teacher feedback can help learners overcome minor setbacks in school. However, it is not clear from the literature what sort of teacher feedback will affectively, behaviourally and cognitively help students especially those in the vulnerable teenage years. Hence, the aim of this current study was to answer the research question: What are the characteristics of teacher feedback that will encourage resilience through the way it engages students' engagement? The findings will offer practical steps teachers can take on an everyday basis to help students deal with academic setback.

Method

The study is part of a larger one that sought to identify different teacher feedback practices and examine how students respond affectively, cognitively and behaviourally to them (Tay & Lam, 2021). This latter study was a longitudinal in nature, spanning across one school semester (five months). It took an ecological approach with the teachers following through the English Language scheme of work already planned by the department. The class assignments which generated the feedback to be studied involved three consecutive writing tasks (short texts or full essays). These were submitted to teachers for their feedback before being returned. The students' actions in subsequent writing tasks were analysed and discussed during the group interviews. Because the study adopted Bandura's (2001) triadic reciprocity theory which highlights not just behaviour and personal affect, but also the environment, the researchers took field notes of what happened before and after the feedback was given. For the purposes of the present study, the data was analysed for evidence related to students' resilience.

As required by the ethics protocol set by the researcher's affiliated institution, consent was sought from all who participated in the study. These consent forms detailed matters regarding consent, anonymity, confidentiality, and the right to withdraw. The students' names referred to all reports, including this, are pseudonyms.

Participants

In total, data was gleaned from 45 students, coming from five different secondary schools chosen to reflect a range of school types. From each school, three Secondary 3 classes (comprising about 40 students) were involved in the study and taught by different teachers. However, the data for this study is drawn from the artefacts and group interview data of the three students per class nominated by their teachers who chose them for their willingness to contribute during interviews. Subsequent analysis of the artefacts suggested that these participants were of various ability and motivational levels.

The group interviews were conducted via Zoom because the COVID-19 restrictions then prevented in-person interviews. They began with the students sharing their prior experience of feedback in English Language lessons, before narrowing to discuss the three writing tasks involved in the study. The students were asked on their responses to the feedback given and where applicable, the discussion centred on their actual artefacts collected from the three tasks.

Data Analysis

The recorded interview data, involving the 15 focus group discussions (comprising 3 students each), were transcribed and recorded sentence by sentence in a Microsoft Office Excel sheet. Guided by an *a priori* coding template with categories involving the affective, behavioural and cognitive perspective adopted for this study, parts of sentences were tagged with the appropriate codes linked to these categories. Any observations from the students' artefact that were related to his/her comments were also recorded in the same row. For example, the students' comments on follow-up were confirmed / disconfirmed against their subsequent artefacts.

Findings

This section will be organised round the students' affective, behavioural and cognitive engagement with their teachers' feedback, based on what the students said and did as evidenced in the artefacts. These findings highlight what aspects of the teachers' practices helped them manage a disappointing performance.

Affective Engagement

It was clear that feedback triggers various emotions in students. Some are nonchalant upon receiving the feedback ("you ponder it for like a few minutes…(then) it's not important…any more"); but some are more extreme ("just screaming in (his) head the whole time" because the mark was lower than the usual). A few students commented how they were discouraged by the many comments e.g., "At first, when I saw the feedback, I thought it'll be like terrible because there's a lot of like, red marks everywhere" (Charlie); "feeling really dejected, because she really has a lot of comments" (Ariel).

So one would have thought that comments like "Good job!" or "Keep it up!" would be welcome by students. However, it does not appear to be the case as suggested by these comments:

> 'Good effort' … doesn't really benefit me. It doesn't pull up my self-esteem. It doesn't make me feel good about my writing. No. It also isn't helping me to improve anything. (Rita)

> When I read the 'decent attempt, keep it up' …I didn't feel motivated…I felt great about my work, but it didn't push me to further continue it. (Alice)

However, Ella's answer helps shed some light:

> So, if I don't do well enough according to my expectations, honestly I will feel really like, dejected and really sad because I did not live up to a certain expectation. But if like, at the bottom, it states what you are good at, or it says maybe you can try this or just some small encouragement, like 'Good try' or 'Good job', that kind of thing, then I think I'll feel more… encouraged to do better. (Ella)

It appears that students found it helpful when teachers highlight the specific areas where they had done well:

> If I am feeling really dejected, because she really has a lot of comments, then I'll look at the end to see if she has any good points to say about my essay, for example, 'Oh you've elaborated well.' Then, I'll actually feel quite proud and work on improving that part. (Ariel)

Students' self-efficacy was also raised when teachers affirmed their improvement in subsequent tasks. For example, Jocelyn said a remark like "Good improvement from the last time" made her want to continue to improve in that area and "receiving that affirmation from the teacher."

Behavioural Engagement

The students' artefacts proved to be invaluable in checking for their follow-up to their teachers' feedback. Firstly, it was observed that students tended to be selective, choosing to correct some areas while ignoring others. In the example below (Fig. 1), the student edited "that" and "reached" but did not follow up on others.

Figure 2: *Example of Selective Revision*
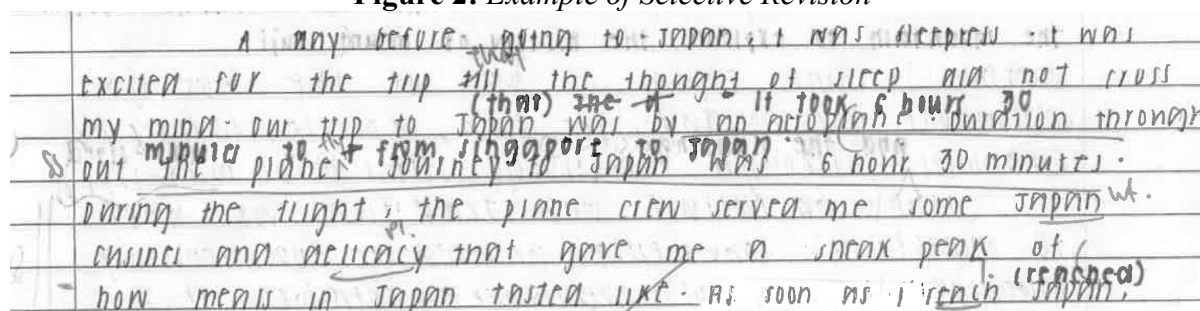
The reason appears to be as Alethea says "I only know how to correct the ones I understand. The rest I don't know" and so ignored them. This is especially when teachers use annotations which they may or may not understand. Cody remarks, "It's …important for the teachers to realise that students aren't in their heads. So they don't know what the teacher might mean in certain ways."

The many comments made on their scripts can also be too overwhelming for students to take action on all. They commented that "it takes time … to actually absorb the feedback" and seek clarification from peers or their teachers. They also shared that rather than "look at everything from each paragraph", they preferred to read the summary statements written by the teachers at the end of the scripts because they highlighted the key points they needed to attend to.

Certain lesson routines also encouraged student to take action. One particularly helpful one was follow-up tasks such as a redraft or a similar assignment. Given a chance, the students also preferred to be given a choice on which part they wanted to revise. This gave students a sense of autonomy and self-efficacy:

> It's like, you take the original and you improve it, but sometimes I'll just do a rework, because sometimes I feel like the original was so bad that I could not see any way on how to improve it. (Jerry)

In contrast, they feel it is pointless in writing the whole essay again:

Because in the context if you think, "Oh, rewrite the whole essay or writing," then it'll be like, "Argh!" You know? Need to write some more paragraphs and all that. But if she said, "Oh, write the one that you are interested in," and then, you know, try to improve on that, I think it's much better. (Messi)

Cognitive Engagement

To help students understand the feedback and take follow-up action, some teachers often led class level discussions after returning the graded writing tasks. This proved to be helpful to students:

Because after every written assignment, the teacher will prepare slides for us, and she will go through the general feedback on what the class has done well and what the class hasn't done well. And I think the general feedback is useful because it does apply for every student. But the specified feedback she gives us, I think it's the most helpful because it is specialized for us. (Emily)

Some students also preferred such verbal and elaborated explanations "because sometimes (with) writing, you don't understand" (Felix). Another advantage is that with such in-person interactions, students could raise questions and teachers can "explain … on the spot" (Dan). Teachers sometimes designed worksheets to accompany such class discussions. These worksheets helped students focus on the common mistakes made and how to correct them.

In addition to post-writing routines, some pre-writing routines highlighted to students what the teachers were looking for and hence helped prepare them for the subsequent feedback when their work was returned. This is done through issuing a success criteria checklist prior to the writing task (See Fig 3). Students found helpful when because it helped them know what teachers were looking out for and hence "get … good marks" (Sophie).

Figure 3: *Example of Success Criteria Checklist*

What are the features of **an effective situational writing**?	Self-reflection
Knowledge: What you write **Including text form, elements, etc.** ☐ My writing is organized and with a clear dominant objective with supporting details and conclusion. ☐ My writing conveys my thoughts in a clear manner. ☐ I know how to use the apt tone: persuasive or objective tone. **Thinking: What you say** **Including ideas, logic in writing, etc** ☐ I plan my essay well and write using many well-defined and developed ideas ☐ I ANALYSE the question for Purpose, Audience and Context accurately …	Two things I did well: ☐ _____ ☐ _____ 　　Something to think about for next writing piece (to make it better) _____ Teacher feedback Using the success criteria, provide student with feedback about two things done well, and one suggestion for improvement _____

Fig 4 shows another strategy used to help students improve on their previous performance. For the new assignment, students were required to submit feedback cover sheet (in which students needed to report on areas done well and ask for specific feedback from teachers).

Figure 4: *Example of Feedback Cover Sheet*

The requirement to submit such self-assessment helped students focus on learning from their previous work and improving in their new submissions:

> Yes, it can help you…you can tell yourself two things you did well, like maintain it in the next essay and then, you can add another two things that you did well again. So, you can keep adding to it and … (Finally) it becomes like a perfect essay. (Tom)

> I think analyzing our work before handing it up is really helpful, because it helps us to reflect on our work and it allows us to see what we did well and what we are missing. I don't think she made us do it for the later ones, but for this first piece, she made us do it and I find it really helpful. (Ariel)

In summary, suggest some aspects of teacher feedback practices are more helpful in nurturing resilience than others. It is clear that students are generally anxious upon receiving their graded work. Some practices exacerbated this anxiety (e.g., overwhelming number of comments) while some alleviated through comments that affirmed areas they had done well in. Students indicated that they could bounce back from a disappointing performance if teachers told them specific areas to improve on and how. Lastly, teachers can help students be better prepared to receive feedback (good or bad) with pre-writing activities such as self-assessing on a success criteria checklist. The feedback cover sheet also helped students reflect on previous work and set goals for the next piece. These findings are consistent with studies reported earlier (ahmed Shafi et al., 2017; Martin et al., 2010).

Discussion

The present study sought to answer the research question: What are the characteristics of teacher feedback that engages students in a way that would encourage resilience? The findings were arrived at after examining how forty-five students responded to their teacher feedback over three rounds of writing tasks, both through the group interview data and artefacts.

Further analysis of the findings suggest that resilience is contingent on will (as in motivation to take action and volition to persist) and skill (as in strategies and knowledge) to overcome the setback. Motivation and persistence were also identified as important related constructs in previous studies on resilience (Kim & Kim, 2017; Mahesar & Jokhio, 2021). What this study showed are the specific teacher moves that can help students remove positive despite setbacks. Consistent with the findings in Hattie and Timperley's meta-study (2007), personal level statements like "Good effort" were not helpful unless accompanied with specific areas to improve. Students were also more motivated to act to improve if there had a choice on which areas to work on. Such opportunities for students to exercise agency will not only nurture resilience (Li, 2017) but also self-efficacy which plays "a major role in (adolescents') transition from childhood dependency to adulthood self-sufficiency" (Zimmerman and Cleary, 2006, p. 65).

However, the will to improve must also be accompanied by appropriate skills to address the gap between the present and desired performance. The findings suggest that teachers walk a fine line between giving enough specific comments and overwhelming the students with too many. Besides, to help students remain "buoyant in the 'sea of assessments'", student need assessment literacy which involves "interpreting assessment and feedback within the context of its purpose, the assessment criteria and the grading" (Millican et al., 2020, p. 142). To this end, students should have repeated opportunities to self-assess against success criteria checklist, reflect on past performance and set goals for the next. Such practices help support students beyond the present context to preparing them to meet their own future needs (Boud, & Soler, 2015).

Recommendations

For Practice

The study has shown that students, far from being passive at the receiving end of feedback, react on an emotional level, particularly after a disappointing performance. It behoves us to acknowledge their feelings as a first step towards ensuring their well-being. But beyond this, teachers need to help students reframe the current assessment as part of a learning journey through certain practices that build on their self-efficacy and agency. These practices are summarised in Fig 5, which builds on Bandura's framework (Fig 1) to help show the relation among the three aspects.

Figure 5: *Feedback Practices that Nurture Resilient Learners*

Behavioural
(Classroom routines that encourage students to act on
feedback and seek further feedback to improve)

Affective
(Feedback that gives
learners a sense of
efficacy; accompanied
with specific areas to be
approved or affirmation
of areas that have been
improved)

Resilient learners
with
capacity to overcome
minor setbacks

Cognitive
(Pre and post
writing
activities to help
learners
understand
teachers'
feedback)

For Further Research

The present report draws relevant data from a larger study on student engagement with feedback. To validate the findings, it is recommended that another study be replicated but specifically focussing on tracking students who have met with academic setback. The findings of this study may also be limited by possible selection bias in the sampling: the participants here were volunteered by their teachers based on their willingness to speak up and not on their resilience.

The study can also be extended to other contexts beyond English Language and the present age-group. This will help generalise the findings. Better yet, greater insights may come from an intervention study using these approaches and comparing pre-post data from a resilience scale validated for this age-group e.g., Adolescent Resilience Questionnaire (Anderson, Killian, Hughes, Rush & Trivedi, 2020).

Conclusion

The theme for IAFOR 2021-2022 is resilience. It is a timely choice given the circumstances brought about by the COVID-19 pandemic, Russian-Ukraine war and negative global financial outlook. To teenagers, these stressors add to an already challenging time of growing up and forming their own identity.

So what can teachers do to help them build resilience, especially among those not performing as well as they had hoped? Given teachers' already heavy responsibilities especially in an age of accountability pressures, this study suggests strategies that are as simple as A-B-C and can be easily built into lesson routines. Yet, these efforts will greatly help learners weather the storms that inevitably come along on their learning journey.

Acknowledgements

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Filipino for Beginners: Teaching Filipino Language to the Japanese Students of Kagoshima University, Japan

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Abstract
The discourse on the study of Filipino has crossed into the global space that is being taught in different parts of the world. In 2011, Filipino for Beginners (FFB) began to be taught with the aim of teaching basic Filipino language learning to Japanese college students at Kagoshima University (K.U), Japan. The purpose of the study was to write the narrative of teaching Japanese students the Filipino language in K.U. towards the proposed development of its teaching. Using Fairclough's Textual Analysis, the reference book, presentation used by the teacher in class, the middle and final exams were analyzed along with the researcher's observation in the FFB class itself. From the data obtained, it appears that there are factors that need to be developed for the further development of teaching Filipino language students. One is to develop their ability to speak and communicate in Filipino and to deepen their learning in the rooted culture of the language being studied. On the whole, the teaching of Japanese students in the Filipino language will be further developed if the cultures of the two countries are balanced in the context of learning. Therefore, the identity and culture of the Japanese is preserved while learning a new language and culture that includes the Filipino language.

Keywords: Filipino for Beginners, Kagoshima University, Learning of Filipino Language in Global Space, Philippine Studies, Textual Analysis

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Introduction

Many countries in the whole world have opened their doors in the study of Filipino and Philippines through the organizational development of Philippines Studies despite the insistence to remove it in Philippine college banking on the implementation of CHED Memorandum no. 20 series 2013. In the paper of San Juan (2017), Filipino, Panitikan and Araling Panlipunan are being taught in 46 universities of different countries like the United States, Australia, Switzerland, France, Russia, China, Canada, Malaysia, Brunei and Japan, besides being taught in 40 Philippine School Overseas. It was also stated that Japan is open to having to learn Filipino in some universities. One of the highlighted studies is the program of Philippine Studies (P.S.) of Tokyo University of Foreign Studies (TUFS) which was transformed into a research institution in 1889 from the former government agency that opened five language departments - English, German, French, Russian and Chinese (Zafra, 2012). Year 1949 when it was again reorganized as a university which opened more than 50 researched languages. At present, under the Faculty of Foreign Studies there are 26 languages being learned. Half of this belongs to languages being found in Asian countries and one is Filipino which was opened as a four-year undergraduate course in P.S. which was established in 1993. Although it was only a part of a greater program of studying Filipino in Osaka University of Japan, learning the Filipino language was emphasized under the Graduate School of Language and Culture wherein a student has the ability to choose what language to study (Nagano, 2012).

One of the well-known universities in the whole country of Japan is Kagoshima University which is ranked 38th place according to the ranking of Japan and 692nd place in rank among universities in the world. Kagoshima University opened the study of Filipino language last 2011 for college students who want to learn a foreign language together with English, German, French and Mandarin languages that aim to join students in global competition in learning a foreign language. At present, there are 17 Japanese students who are enrolled in Filipino for Beginners under a Japanese professor Prof. Satoru Nishimura. He married a Filipina. He was an exchange student in the University of the Philippines where he stayed long to do research. Since the start of the program, Prof. Nishimura, with the help of his wife, taught the basic structure and use of Filipino language as the objective.

Many documented studies in the Filipino language have been done in the global space but what is really the importance of the contextualization in the study of the culture as it is related to learning the language? The study will respond to the challenge in the intellectualization of the Filipino language through strengthening the studies on the global space in the center of Filipino culture. It is also strengthened by teaching and learning the Filipino language through internalization. These strengthened the ties that bind the Filipinos and Japanese.

The program Filipino for Beginners in Kagoshima University, Japan aims to write the narrative in teaching the Filipino language and how to improve it.

The following are suggested for the improvement in teaching it based on research:

1. History and importance of the organized program in Filipino for Beginners in Kagoshima University, Japan.
2. Narrative in teaching the program Filipino for Beginners for Japanese students in K.U.

3. Facts in teaching students of Filipino for Beginners program in the formulation and suggestions of its improvements.

Cultivation and Improvement in Teaching Filipino rooted in the Cultural Context

Language and culture cannot be separated in the study of a language which is related in the culture of a language being learned. According to Yanchang (qouted from the study of Sulit, 2018), "learning a second language is also learning its own culture." In addition, Mangahis (2010) said, "it is not only the language structure that will be studied but also the culture as a whole which is inside the language being learned."

A concept can be formed wherein it is made clear the relationship between a language learned and its concomitant context of the culture of the second language learned.

According to Byram and Grundy (2003):

'Context' is thus as complex a concept as 'culture', the latter being notoriously difficult to define. 'Culture' in language teaching and learning is usually defined pragmatically as a/the culture associated with the language being learnt.

It is important that understanding its context enables the learner to relate to time, place and person the culture of the people learning their language. It is not familiarity of the student or learner to the person as the basis for formulating communication, but it is the context or content of the language to be used (Heath, 1986).

In the case of the Japanese learning the Filipino language, it is not only the grammar and goal to formulate a basic communication using the second language, but also it is necessary to cultivate a knowledge of the culture of the language being learned towards a more effective learning.

There was also a project formed in 2007 between De La Salle University and SEOMEO Regional Language Center of Singapore which is called Filipino Language and Cultural Immersion Program for Singaporeans (FLACIPS) wherein the Filipino language was being taught as a second language among Singaporean. Mangahis (2010) illustrated two settings in the teaching of language, (1) the language classroom which teaches a target language as subject only but the language wasn't used in conversation outside the classroom and; (2) the second-language setting which points out the continued use of the language outside the classroom during the first two weeks if there is not yet enough knowledge of the language being learned. In this situation, the learners gradually learn how to pronounce or say words and short phrases in their expression. In order to reach the level of second-language setting by Singaporeans, the Filipino language was taught together with the culture imbibed in it like teaching the word *"opo",* the teacher cultivated the concept of respectfulness of the Filipinos. The learners serve as anthropologist in comprehending and appreciating how things were made in consonance with language learning. He also added that it is important for the learner to learn the correct way of conversing with elders, correct way of saying thank you, correct way of requesting, different ways of agreeing and disagreeing, and understanding intonation and tone of listeners.

The learners must understand the second language being used with their own language. The appropriate behavioral trait in relation to the culture of the language being learned.

In the study of Zafra (2016), he stated or appealed that the study of Filipino language is not only concentrated to grammar and communication but also enhance the relationship of language to Filipino culture: (1) in choosing contextual examples in the Filipino language aspects like ideas, beliefs, values and Filipino personality towards grammatical trait of the language in the study of a personal pronoun where the idea of a Filipino about himself and others. Example is the word *"kita"* which correlates or equivalent to *"ko"* and *"ikaw"* which indicates the nearness of 2 persons talking; (2) learning its use according to its fitness in the context of culture. Derived from *communicative competencies* of Hymes, it is not enough for the learner to know the meaning of words and the rules in using different kinds of speech. It also teaches the appropriate use and interpretation of the language to the different societal situations and cultural context.; (3) study of the different symbols of Filipino culture which may be formed by people, place, thing or object concept and other indicators of culture, society and history of the Philippines; (4) study of a culture that embodies the language. In this recourse, Zafra gave four language competencies which can be used in class - first, description, that describes cultural experiences. Second, giving meaning that refers to the language being used giving evidence to views and comparing it to ourselves and to others' views. Third, a response that responds to a language and plans about cultural experience. Finally, participation that reasons to a language used in connecting people and society, language used to influence, and language used in producing changes in culture.

Methodology

Qualitative research was used to know the importance of teaching Filipino for Beginners at Kagoshima University and some facts in teaching it by means of interviews to key informant using the *Key Informant Interview*. Giving meaning to KII as a method in gathering deep, detailed, and comprehensive knowledge and experience of the key informant about the topic. *Participant Observation* was also used as a direct and personal observation to a phenomenon wherein a researcher invested time and space in making an observation class for Filipino for Beginners at Kagoshima University as teaching and learning narrative for Japanese learners inside the classroom. It used *observer-as-participant* wherein the researcher was part in the process, but it has limitations depending on the community limitation set and thereby informing the members of the community that observed and collected date by the researcher. On the level of participation in the community by the researcher, in the degree of *Active Participation* wherein the researcher is also doing what the class of Filipino for Beginners do besides being a Language Teaching Assistant professor.

The teacher in the class of Filipino for Beginners, Professor Satoru Nishimura acted as Key Informant in the interview one by researcher. He is 56 years old and 25 years as professor at KU. He was chosen as KI in gathering data needed being the founder of the program Filipino for Beginners at KU. The student was not considered as participants in the class being observe because it is a big challenge the difference of language understood by the researcher and students that will affect in gathering data that's why the teacher didn't allow a survey or interview be conducted among the students. The reference book was also gathered entitled *Ekusu Puresu Filipino* (Express Filipino) by Mamoru Tsuda; PowerPoints used by the teacher in the presentation; syllabus of the class of Filipino for Beginners and; the midterm and final examination of the class for content evaluation of each student based on Textual Analysis. But the student's test scores weren't obtained because the teacher didn't allow it.

By means of the data gathered, it was evaluated by Textual Analysis by Fairclough that was based on four factors – (1) Occurring (Topic, Activity an Objective; (2) Participants

(Teacher, Students and Language Training Assistant; (3) Relationship (Teacher and Student); and the function/role of Language. The teaching factors that need development was associated with the narrative of teaching Filipino for Beginners by the theory Language and Power by Fairclough that discusses the relationship of use of language and uneven use of power of man. The evaluation on the discussion of learners' achievement of Japanese language particularly the concept of *kokusaika* and *nihonjiron*. Finally, the suggested development of the syllabus for Filipino for Beginners was evaluated and presented based on the theory of Context and Culture in Language Teaching by Kramsch which responds to the necessity of teaching Filipino deeply rooted in its culture.

Results and Discussions

History and Importance of Learning Filipino Language in Kagoshima University

Based on the program Filipino for Beginners at Kagoshima University, this started year 2011 under the leadership of Prof. Satoru Nishimura, a Japanese married to a Filipina that's why he has the ability to speak the Filipino language. The program was designed for college students on their first or second year who wants to learn a foreign language. This has an equivalent of 2 credit units.

Most often, it is the Japanese students who took lessons on Filipino language while there's only one Filipino enrolled or children of Filipino-Japanese couples or Filipino-Japanese youth. There are also selected students from the class of Rural Economics of Southeast Asia who study Filipino as part of their Exchange Knowledge or *Palitan-Dunong* of the University of the Philippines. As a preparation, they study the basic knowledge of Filipino language.

It is a big step of opening the program Filipino for Beginners at Kagoshima University because it is the first university in Southern part of Japan particularly Kyushu Island besides the Tokyo University and Osaka University which also opened for the study of Filipinos who are in the middle Northern part of Japan. It is also an important factor in the opening of Filipino for Beginners the big population of Filipino living there who are Overseas Workers and married Japanese at Kagoshima where most of them are living there and where Kagoshima University is located too. Although there is only one student enrolled whose parent was Filipino-Japanese, the program is open to Filipino-Japanese students who wish to learn the language and culture of the Filipinos.

Learning a second language or other language by the Japanese wasn't the reason for their need to earn a living; rather to enrich themselves on the knowledge of the language and culture of another country. An example are the researchers of the Exchange Student from different universities of the Philippines. This program is of great help for the students who wish to learn the basic culture of the Philippines as a preparation for their living in the country for 6 months to one year.

Teaching of Filipino for Beginners Among Japanese Students

Syllabus and Reference Book

From the syllabus of the program Filipino for Beginners, it is under the General Study Subject means that it is mandatory for college students. Every second semester, the study of Filipino for Beginners is 15 weeks from October to February. Its objective is for students to

learn the Filipino language and culture. There are 15 topics discussed per week in class. A hundred percent of the total grade of the students will come from the midterm and final examinations. Other reference books are open in the class but there is one book used by the teacher. It is *Ekusu Puresu Filipino* translated in English as Express Filipino which was written by Mamoru Tsuda. This is written in Filipino language using the Roman alphabet which has a written Katakana translation so that the Japanese can read.

The students were recommended to enroll under the *Active Program* of Prof. Nishimura, a lesson by having an immersion of the students in any university in the Philippines. Even the students who are members of Department of Economics were recommended to participate in the training program of farming in the Philippines.

The Teacher, Student and Language Training Assistant as Participants in Class

The teacher used the Japanese language in the classroom as pointed out in the observation conducted in the class of Filipino for Beginners. There is a resemblance in the Filipino class in teaching English to schools from elementary to high school wherein the teacher is using the Japanese language in the classroom. This method is effective because the students learned the skills more especially the structure of Filipino language as the meanings of the words and sentences are being translated into Japanese language. In line with the study of Sulit (2018) from the study of Yoneno-Reyes on bilingualism, the cultivation of a second language by students who are in different levels. Frist language plays an important role wherein the students are better in bilingualism who have enough knowledge in their first language which oftentimes are based on one country. The teacher uses English only in talking to the Language Teaching Assistant in class. In the student's learning process, it is faster for them to realize the way on how to form sentences but couldn't easily get the way on how to pronounce words that are not native in their language like *ang* (the)*, mga, ng* (of) and words with *r* which they most of the time pronounce it as *l*. In addition, on the interview with Prof. Nishimura, the students are confused on the concept of *may* and *wala* (none) because these words are likened to *oo* (yes) and *hindi* (no). (Nishimura, personal communication, March 6, 2019).

The role of the Language Teaching Assistant (LTA) who is a native of Filipino language is to pronounce the example or sample conversations being discussed in the class to be sure that the correct pronunciation of the words is learned. Since the opening of the program, the spouse of the Filipino teacher acts at the LTA. The LTA doesn't teach, instead, he only guides the teacher pronouncing the words in class. The teacher also uses a strategy the repeated exercise on recitation, wherein the learners imitate the pronunciation of sentences, after the LTA, even during examinations.

Midterm and Final Examinations

The students are being estimated by the midterm and finals examinations which was given by the teacher to the student as a whole percentage in making grades. Midterm examinations is given every December before vacation and on February for the final examinations. In the midterm examinations, the students are given permission top open their notebook as a help in their answering but no longer on the finals.

The midterm exams are divided into 8 parts in the form of pronouncing words or sentences, forming appropriate phrases, correct verb usages, articles, pronouns and prepositions. The

final exams were shortened and has three parts. The first part includes the identification of terms in Filipino, the quantity of numbers, time and money that were written in the Japanese language. The second part and last is translating sentences written in Filipino language into Japanese language and vice versa.

There are 52 items in all in the midterm exams, 40 items in the finals. According to Tomoaki Takeshita, who was a student of Filipino for Beginners and exchange student from Kagoshima University and who translated the test questions. It was easy for the Japanese students in answering the questions because there is a translation and meaning of every question in Japanese language, but they couldn't answer without translation. (Takeshita, personal communication, October 8, 2019).

Factors Enhancing Teaching and Learning of Students in the Program Filipino or Beginners

The focus of teaching Filipino for Beginners are the structures and construction of sentences/or grammar, like the way Japanese learned in English, the students weren't effective on conversing and communicating in Filipino because this last one wasn't cultivated in class. In the observation made, there was no actual conversation between teacher and student or between student to student where the use of conversation in Filipino was not put into use. The students only imitated the teacher and Language Assistants on how they read and pronounce the sample conversation given by the teachers but weren't given the chance to construct their own sentences and topics. Even in the midterm and final examinations, the focus is on the correct structure of the Filipino language.

It was found out that basing on theory of Language and Power of Fairclough that responds to the relation of language, there's unfair use of power of man based on his society. It is presumed that the teaching of Filipino language and English is rooted out of discussion on *kokusaika* which came up on an educational reform of the Japanese. This reform concentrates on nationalism and love of culture and traditions also strengthening the cultivation of the cultural awareness, language, and Japanese society to foster the understanding history, culture, and tradition on the international scene. This paved way for the need to learn foreign language by the Japanese in order to implement the objective which is anchored with the understanding societies of different parts of the world.

Because of the deep ties between the Philippine and Japan, the program Filipino for Beginners was formed for the Japanese students to have a basic knowledge as exchange students of the Philippines. Even researchers and student-teachers majoring in Economics aim to conduct field work in the Philippines. As a culminating activity, the program conducted a *Palitan-Dunong* or Exchange Knowledge from a few selected Japanese students to go to the University of the Philippines to tackle n language, culture, and Japanese-Filipino society.

Only the selected who wish to come to the Philippines get this and even the Filipino-Japanese youth living in Japan don't study Filipino language as they don't see it needed due to discourse of *nihonjiron* as cultural nationalism, which points to the emphasis of self-identity among Japanese while going along with the economy and politics of the western world. Because the Filipino-Japanese youth is immersed at the culture and language of the Japanese, learning the Filipino language only when given a chance or when learning only from his/her mother. Even some Japanese students learn the Filipino language in exchange of their two

credits grade. Because of this, the need to raise the standard/level of the program Filipino for Beginners into a four-year course is not envisioned.

Cultivation and Growth of the Program Filipino for Beginners

From the data gathered in observing the class of Filipino for Beginners, a requirement is presented on some recommendations which can be given by researchers about the advancement of teaching and learning Filipino language among Japanese students at Kagoshima University. As a result, from the syllabus containing topics being discussed in the class Filipino for Beginners, the researcher laid down some recommendations on cultivating and developing the program through suggested activities to choose from that can be discussed in class, anchored within the culture of Filipino language. Language and culture cannot be separated; therefore, it is imperative to relate it to the culture of the language to be learned. According to Mangahis (2010), it is not only the structure of language learned but also the entirety of the culture within the language learned. In the Japanese educational system, it is of help to use the Japanese language in teaching the Filipino language but it shouldn't exclusively be taught on the sentence structure or grammar. Hand in hand, is the conversation or communication among students using the language and culture in it.

There are added topics which a teacher can do in the discussions, one is the system of writing the spelling, an alive culture of the Filipinos specially that it has similarity with the system of writing among Japanese, the Kanji, both of which came from natural way of writing it. The teacher can show videos as motivation or introduction in class like the *Awiting Pambansa* (National Anthem) or folk song to familiarize the students in the pronunciation of words besides doing the skit of the LTA.

Great factor also is a drill or exercise on Picture Test or showing pictures to learners in order to fill in the correct word or sentence with the image shown in the picture. Just be sure that the pictures are in the context of the Filipino language as a way to open a discussion that is rooted in Philippine Culture. For example, a picture shown to the class in lessons Verb 1, 2, and 3, wherein there are children reading, playing *Luksong-Baka* and going to church which Filipinos are known for their religiousness due to the Spanish occupation. Another is to choose or compare the pictures like Intramuros and Quiapo that are found in Manila as tourist attractions and the primary means of transportation are jeepneys and tricycles.

Foremost of the factors that have been mentioned which needs to be developed in the students are the conversation and communication skills using Filipino language, therefore, it was recommended to add more exercises on speaking by giving examples of sentences in Filipino language in the context of things found inside the classroom. There may be interactions among the students to each other or their teacher and also to the LTA if students are given practice exercises in conversation wherein guide questions are given to the students to answer. Another is the Speaking or Conversation Test wherein the two students can form their own sentences and show it in the class.

Finally, as part of the final requirement in class, students may conduct a sharing of person, object, place, food or any material, tradition, belief and culture of the Philippines that they wish or like. The student will get a picture and write five to eight sentences about the picture then share it with the class through speaking and showing the picture. Three skills will be enhanced through language learning - reading, writing and conversation of students in the Filipino language.

Conclusion

The program Filipino for Beginners is open to college students of Kagoshima University who are in the first and second year that need to get an additional two credit units in the study. It aims to teach the basic knowledge of the Filipino language and culture through the Japanese language as a medium of instruction, use of reference book as a source of topics discussed in class, presentation of teacher in the form of PowerPoint Presentation based on the book and conducting of midterm and final tests that estimate the ability of the student in grammar. There is a ready Language Teaching Assistant who is a native speaker of the Filipino language to check the correct pronunciation of words by the Japanese teacher. There is an effect in the teaching and understanding of Filipino language and discourse of concepts *Kokusaika* and *Nihonjinron* that discusses the ideology of Japanese society.

From the data gathered in teaching Filipino at Kagoshima University, it was realized that there are factors needed for improvement towards a more progressive teaching and learning of the Filipino language. One factor is cultivation of the learners' ability to talk and converse using the Filipino language and deepening of learning that is rooted in the culture of language being learned. Based on the study of Kramsch, the discussion on the language using the culture as launching pad should have no discrimination or favoritism between the culture of the student and the culture of the language being learned. The third culture of the language being learned inside the classroom and in ordinary place or space wherein a student's self-creativity and discovery and realization of the targeted culture and language being learned (retrieved from Mangahis, 2010). The teacher should not only focus on the correct and wrong grammar of the language, instead, attention should be given to the meaning, giving interpretation on their silence and actions or attitudes inside the classroom. In this manner, the classroom becomes a space of cross-cultural fieldwork wherein a new culture and language arises from the interactions of the teacher, students and textbook used in discussions. The students are also given chances to participate or involve with cultural education and not only form a relation in the use of a new language.

The teaching and learning of Japanese students in the Filipino language can be more developed if the culture of both countries can be contextually balanced. In this situation, the Japanese identity and culture can be retained and maintained in the consonance of learning a new language and culture in which the Filipino language is contained.

It is important to highlight and develop the gradual weakening situation of the Filipino language in the country. That's why in order to continually develop and cultivate more of it, it is appropriate to continue the objectives and aims in teaching the Filipino language to the next generation in and outside the country.

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Children's Three Voices: An Exploration of Indian Students' Meaning-Making of Nature & Place

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Abstract
The study uses Interpretive Phenomenological Analysis to explore five Indian children's meaning-making of nature and place during two environmental education programs. Data consisted of structured interviews, semi-structured group discussion, written assignments, and student-authored storybooks. The results show that children's encounters with nature led to fascination, a sense of peace and belonging, gratitude, and love. The sense of merging identities engendered feelings of protectiveness and anger at human actions. Children amplified their meaning-making by authoring storybooks on nature. The results reinforce theoretical and other empirical work on the process of nature and place connectedness but add to sparse research on the meaning-making of nature by Indian children through an examination of their own voices. Furthermore, they explore the integration of children's meaning-making embedded in place and nature. Lastly, the research highlights how the dynamics of meaning-making and connectedness fuel children's environmental activism.

Keywords: Place-Based Nature Education, India, Interpretative Phenomenological Analysis, Student Views

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Introduction

> *...It's not like saving the environment. I think I wanted to show that Chennai is a very beautiful place. – 8th Grader Rabia*

This research foregrounds Indian children's meaning-making of nature and place during two related environmental education programs. The first program was a place-based nature education program in Chennai, India. Children spent extensive time in Chennai's biodiverse hotspots and learned about the consequences of rampant urbanisation. The second program was a book writing program in which children used their prior experiences to write and illustrate storybooks on nature. Children's meaning-making of their place and nature experiences and its manifestation in storybooks was investigated using Interpretative Phenomenological Analysis. The results add to sparse research on the meaning-making by Indian children through an examination of their own voices. The research explores the dynamics of developing nature and place connectedness. The research would add to researchers' and curriculum makers' understanding of student experience of urban environmental education programs.

Meaning-Making

Humans construct their reality by interpreting experiences and making meaning. Children make meaning of significant and personally meaningful experiences through an interplay of cognition, affect, reflection, and prior experience and prior knowledge (Elkjaer, 2018; Illeris, 2019; Kolb, 1984). Dissonance in experience leads to emotive responses which drive curiosity and inquiry mediated by action and reflection leading to cognitive understanding and new envisioning (Brooks & Brooks, 1999). Meaning-making happens in a social and cultural context (Vygotsky, 1978). Children's meaning-making is expressed multimodally through oral talk (Worthington & van Oers, 2017), drawings (Einarsdottir et al., 2009), artefacts (Stein, 2003), writings (Bock, 2016) & digital expression (Khoo & Churchill, 2013).

Nature Connectedness & Place-Attachment

Place-based pedagogy locates learning in the students' local environments (G. A. Smith, 1999; Sobel, 2004). Nature-based learning is one form of place-based learning (Kudryavtsev et al., 2012; G. A. Smith, 1999) which includes learning about local environmental issues (Vaske & Kobrin, 2001). Another approach to place-based learning is to engage students in real-world problem-solving connected to a place (Smith, 1999). Place-based and nature-based education both help children make meaning of their learning experience by providing context, engendering emotion, and creating cognitive connections (G. A. Smith, 1999; Sobel, 2004). There are similarities in how place attachment and nature connectedness develop and is manifested. The relationship is like that with a parent or partner to whom there is a commitment (Davis et al., 2009). Direct and repeated experiences creates a sense of belonging (Chawla, 1998; Ernst & Theimer, 2011; Schultz & Tabanico, 2007) and result in emotions of love, pride, and grief at loss. The attachment is manifested in affective, cognitive, and behavioural ways. Threats and degradation of the environment produces emotions of guilt, anger, sadness (Kahn, 1997; Kellert, 1993; Stern, 2000). The cognitive and affective impact of connecting with place and nature results in a desire for frequent connection and a sense of protectiveness (Lewicka, 2011; Scannell & Gifford, 2010; Schultz, 2002).

Children give meaning to place and nature in ways that are different from adults - what seems meaningless to adults may hold meaning for children (Scannell et al., 2016). (Chawla, 1992) outlines three dimensions of childhood place attachment - the need for security & belonging, social affiliation, and creative expression and exploration. Children give importance to places in which they have the autonomy to ascribe meaning, which is co-constructed with friends (Chawla, 1992; Koller & Farley, 2019; Rogers, 2012). The outdoors holds special significance for meaning-making since it enables exploration and autonomy (Cheng & Monroe, 2012). Cheng & Monroe (2012) postulate four dimensions of children's nature connectedness i.e. the enjoyment of nature, empathy for creatures, a sense of oneness, and a sense of responsibility. Well-designed educational interventions which provide nature experiences enhance nature connectedness (Bruni et al., 2017; Liefländer et al., 2013).

Children's Environmental Activism

Despite limited resources and political power, children have a deeply personal interest in combating environmental degradation which threatens their future (Spyrou, 2020). Children and youth took the lead in organising worldwide climate activism through school strikes, Fridays4Future, and other protests (Nissen et al., 2021; Spyrou, 2020). Place-based nature experiences resulted in environmental activism by students in tiny St Vincent and the Grenadines (Selby et al., 2020). Danish students lobbied for town-wide policy changes which integrated place and environmental issues (Jensen, 2002). Activism can also take place through research, literary and arts-based expression, what Noddings (2005) calls 'telling stories of a place. Children and youth conducted ethnographic research in local communities and showcased their results in public exhibitions and on online platforms in Australia (Cutter-Mackenzie & Rousell, 2019). Children have also used photography (Littrell et al., 2020; Malone, 2016), and film (Mallick, 2022; Trott, 2019, 2020) and art (Shekar, 2020) to raise their voices. However, such opportunities for children's activism within formal schooling are extremely rare (Hungerford & Volk, 1990; R. Sharma, 2021).

Need for qualitative research

Malone (2016) argues that the constructs of nature connectedness and place attachment, especially for children, are rooted in middle-class, white, western notions of dominant humans connecting to and saving nature. The binaries of subject/object, human/nature, culture/nature, place/nature are a simplistic whitewashing of lived reality and do not account for cultural, economic, and gender differences. The purity of nature, unsullied by contradictions of harsh realities of life, animals, complexities of place is contrary to the ontological and epistemological lived experience of the majority of people in the global south. Hence research is needed to uncover meaning-making of nature and place from the perspective on non-Western children.

Furthermore, most research measuring nature connectedness and place attachment in children has used quantitative instruments (Bruni et al., 2017; Bruni & Schultz, 2010; Cheng & Monroe, 2012; Davis et al., 2009; Ernst & Theimer, 2011; Lewicka, 2011; Mayer & Frantz, 2004). Indian research has also typically been quantitative, measured shifts in knowledge or attitude (Chhokar et al., 2011, 2012; Ramadoss & Poyyamoli, 2010); and focussed on higher education (Islam & Chandrasekaran, 2016) or teachers (Aneeshya, 2018; Namdeo, 2018; K. Sharma & Pandya, 2014; Shin & Akula, 2021) These approaches view children and their ontological being through adult lenses and ignores their voices in research. Lastly, Nissen et al (2021) posit that youth activism with possibility of sparking subcultures of music, art, and

literature is an emergent and under-theorised field. Hence, there is a need for qualitative research which foregrounds Indian children's voices to understand their meaning-making of nature and place especially given the highly constrained and powerless reality Indian children confront daily in schools where their voices rarely find expression. The entire landscape of Indian children's meaning-making of place and nature, of negotiating 'difficult knowledge' of degradation and threats to a loved place and of eco-activism is invisible.

One way of hearing children's voices is to understand how they express the meaning of a lived experience. To children, schooling is a lived experience. In fact, it is *the* lived experience, given that children spend the larger part of their days in school (Thiessen, 2007). But time is not the only determinant of what is given importance as a lived experience. The value of the experience matters (J. A. Smith et al., 2009). In this particular case, the field ecology program was so powerful that the children were completely subsumed in it to the exclusion of other 'regular' school happenings. The book writing program had a similar impact on the children - it covered their mindspace despite the pandemic, lockdowns, feelings of isolation, and fear.

Method

Interpretative Phenomenological Analysis

Interpretative Phenomenological Analysis (IPA) is a method of qualitative research that examines how people make meaning of major life experiences. It uses phenomenology, double hermeneutics, and ideography for interpreting the experience of a small, homogenous group of participants to develop an understanding of the 'essence of the experience' (Pietkiewicz, I & Smith, 2012). The goal of the IPA is for the researcher to make meaning of participants' meaning-making - engaging the researcher in double hermeneutics. IPA researchers move within and across participant data, from part to whole shifting between different levels of the hermeneutic circle to illuminate meaning (J. A. Smith et al., 2009). IPA's idiographic approach necessitates a detailed examination of each participant's data by getting close and 'standing in their shoes' to gain an empathetic understanding of their voice. It also necessitates a 'distance' where the researcher 'stands alongside' the participant, and adopts, what Smith et al (2009) call the 'questioning' stance to probe, ask questions, and make interpretations. This involves several conversations with the participants, immersion into the data, multiple readings, and critical reflection of the content to generate themes (Pietkiewicz, I & Smith, 2012).

Research Questions

1. What meaning did children make of the place and nature they experienced in the field ecology program?
2. How and why did this meaning manifest itself in their voices and in their books?

The Project

A two-year place-based nature education program provided experiential learning of Chennai's biodiversity hotspots. Children spent two days a month either learning in-situ at a restored wetland or going on field trips. They saw the natural beauty, degradation and restoration works. During the pandemic, the children participating in a storybook writing program where they wrote and illustrated picture-books on nature. Teaching and learning

consisted of direct instruction, whole group discussions, individual mentoring, research, and reflective writing. Students had the autonomy to determine the theme and content of their storybooks. The online program was held after school hours during the pandemic in 2021. The resulting storybooks are listed with an online retailer.

Participants

IPA is conducted with a small homogenous group of participants to enable a detailed examination of their experience and identify the convergence and divergence in the experience (J. A. Smith et al., 2009). Five participants were selected purposively from among the group of students who participated in the storybook writing project. All participants were middle school students of the same school in Chennai and had participated in the ecology programs. Demographically, they all belonged to middle-class Muslim families with similar educational, economic, and social backgrounds. They all lived in an urbanised suburb of Chennai. The criteria for selection for these five from the 14 who participated in the book-writing program was based on:
   a. Participation in the previous field ecology program
   b. Mix of grades
   c. Students whom the teacher knew would be willing to articulate their feelings and positions in detail

Grade	Pseudonym	Age	Theme of storybook
8	Rabia	13	A backpack lost in an urban forest wetland narrates its adventures to a feral cat thereby taking the reader on a journey through polluted but beautiful Chennai.
	Rifa	13	Schoolchildren on a shore-walk in Chennai discover the beautiful creatures and learn about an upcoming beach development project. The children and the local community organise protests which successfully scuttle the project.
7	Aysha	12	A molecule of carbon dioxide in Chennai discovers the adverse role it plays in creating pollution and works to find an eco-friendly solution.
	Hafsa	12	A lapwing narrates its migration to Chennai's wetland and highlights the rapid environmental degradation.
6	Musa	11	A sea eagle has to flee its home due to a beach development project and finds shelter in a restored wetland in Chennai.

Table 1: Participants & their storybooks

Interview Schedule

The data collection took place during the book-writing project. The collection procedures had to account for the power dynamics that are present in Indian classrooms between adults/ teachers which influence how children respond to adult questioning. Since IPA can also look at other evidence of the lived experience which enables a rich and detailed understanding (Creswell & Poth, 2018; Pietkiewicz, I & Smith, 2012), our first data were collected through reflective or creative writing assignments and open-ended reflective journal entries. These were completed as home assignments and not compulsory, hence were non-threatening for children. Next, we conducted a semi-structured interview using Google Forms. It contained open-ended questions and enabled students to give free and detailed responses without being influenced by the facilitator or researchers' presence. Third, we conducted an online semi-structured, focus group discussion at the end of the book writing project. The group discussion was facilitated by the mentors. Smith et al., (2009) caution against using focus groups in IPA. However, we were aware of the dynamics of this close-knit group. The audio recording was transcribed using software and the resulting transcript was edited by the lead researcher to correct errors and to replace student names with pseudonyms to preserve anonymity. The data is available only to the researchers. Last, we analysed the five books written by the children. These gave us insights into how the children's meaning-making translated into reality which is the subject of another forthcoming paper. A short description of the books is given in Table 1 alongside the participant description.

Data Analysis

Smith et al (2009) outline a process of data analysis for IPA which involves moving back and forth in the data through several readings, personal reflection, and discussion. The data for each participant was first consolidated to present a coherent picture of each child. The data was copied into a table format in Google Docs, with a column to record emergent coding, notes, and reflections. The data were read several times by the researchers. The first reading provided impressions, reflections, and thoughts. Researcher reflections were recorded as notes in analytic memos (Saldaña, 2021). The second reading resulted in emergent coding. The participants' written assignments and semi-structured interview and group discussion responses were coded inductively and manually using In-Vivo coding (Saldaña, 2021). The storybooks were analysed thematically to understand how the children's meaning-making transferred to their books and to find patterns across the different narratives (Braun & Clarke, 2006). Two researchers independently coded each participant and then discussed how to resolve differences. The coding was done for each participant before moving to the next participant to ensure a coherent picture of each child's expressions. After coding all the participants' data, further reading and discussion were done to group the coding into themes. Quotations that illuminated the meaning of the themes, commonalities, and differences were highlighted. The codes were consolidated into three overarching themes. The data, coding, and themes were shared with the third researcher for validation that the analysis was grounded in the data.

Ethics & Researcher Role, Quality & Reflexivity

Consent forms permitting the use of student data for the study were signed by both parents and the children. Pseudonyms have been used to protect the privacy of the participants. Students' permission was sought for the specific quotations used by them in the paper. Participant data is kept confidential and stored securely on Google Drive. Two researchers

were participant observers in the research. The researchers used their practitioner background and experience to describe and interpret the data. The third researcher was the mentor and guide for the study. Qualitative research is more about persuasion than accuracy since the very nature of IPA embeds the researcher in the study. To address issues of trustworthiness and credibility, within the bounds of maintaining participant confidentiality, the researchers have provided descriptive data about the participants as well as outlined the researchers' roles and perspectives. We have described the method and procedure in detail to clarify the research method. The results section extensively uses quotations from different participants for each theme to illuminate the commonalities and differences for readers. Reflective memos and inter-researcher discussions helped maintain researcher reflexivity.

Results & Discussion

During the second project, children had to recall the memories of their nature experiences to shape their storybooks. This involved a process of reflection, joined sharing of memories, and probing their recollections to find inspiration for their storybooks. The nature experiences had been memorable and created a powerful cognitive, affective and kinaesthetic impact. The memories of the experiences were multi-sensory combining aural, kinaesthetic, and visual. The sense of fascination, affordances of peace and belonging, a feeling of gratitude, and times with friends created feelings of love for the place, what (Tuan, 1990) labels as 'topophilia'. The sense of empathy and protectiveness led to an increasing sense of identification with nature-place as a part of their ontological being (Lumber et al., 2017). The children also witnessed the negative human impact on the environment and this produced feelings of frustration and anger (Schultz, 2000, 2002). This recollection and meaning-making led to emergent and exploratory examination of conjoint identities. Children expressed their understanding of what nature might feel about human intervention. The merging of identities was a two-way street - the children started using metaphors of nature to speak about their personal challenges and experiences. While many children are upset by environmental degradation (Rousell & Cutter-Mackenzie-Knowles, 2020), few feel they have the agency to do something about it (Chhokar et al., 2011, 2012; Otto et al., 2019). Part of the reason is that children lack knowledge about potential actions (Jensen, 2002) or are not empowered to do something with their knowledge (Hungerford & Volk, 1990). In contrast, the book authoring program provided the children with a formal channel for their need to raise public awareness about environmental damage in their city. Children engaged in what could be called an act of ventriloquism when they spoke for place and nature by authoring storybooks. There was a sense of urgency as children talked about the danger of ignoring the 'wake-up call' or else there would be 'no use crying over spilt milk'. These results are categorised into three expressions of meaning-making (Figure 1):
1. The Voice of the Child - Connecting with Nature
2. The Voice of Nature - Identifying with Nature
3. The Voice of the Author - Advocating for Nature
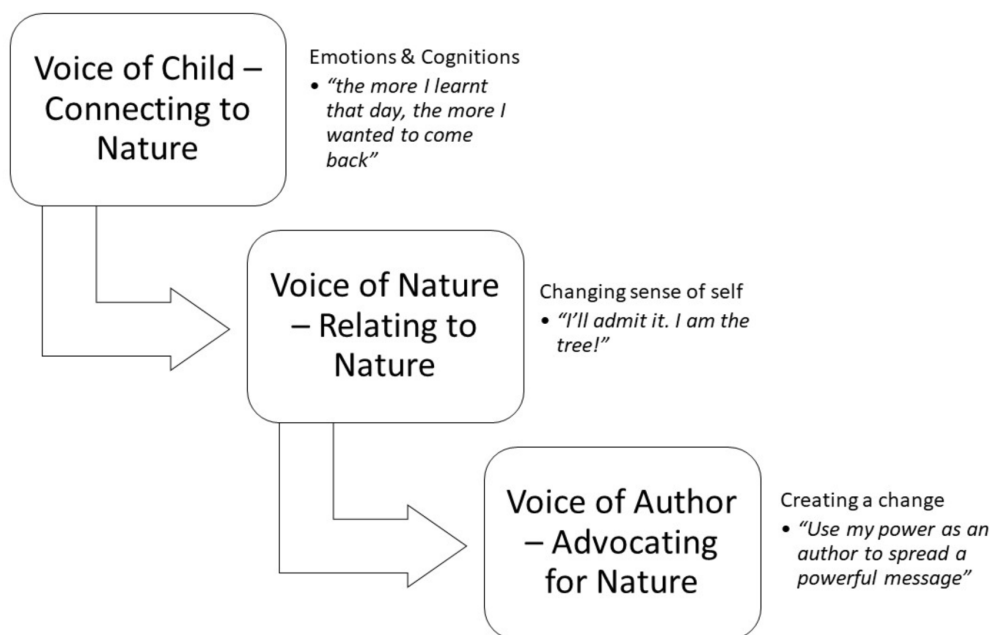
Figure 1: From Meaning-Making to Activism

Voice of the Child - Connecting to Nature

This meta-theme addresses the first research question to explain what meaning children made of nature experiences. Children were fascinated by their time in nature. For Musa, the sense of the magnificence of Poonga forest and the way it nurtures the multitude that inhabit it, made a powerful impression. Hafsa started the program with low expectations in keeping with her assumption that learning is 'boring'. But her opinion changed to enchantment when she visited the Adyar Poonga wetland and was struck by the beauty of the river. Rabia was fascinated by the multitude of new creatures she encountered at the Muttukadu beach. Sustained contact with the natural places in Chennai created a sense of peace and reinforced a sense of belonging (Cudworth & Lumber, 2021; Tuan, 1990). However, Musa expressed a sense of 'restlessness' because he was overwhelmed by all that he saw. Children expressed gratitude for being privy to a special place in Chennai where 'wildlife lives unaware of the outside country'. Rifa's words were very contextual, reiterating the connections she already had in real life. Her predominant discussion was about experiences with friends and instructors while nature and place provided the context for co-constructed memories. Children had been eager to continue the relationship with nature by sharing how they loved to be with nature. The sense of love had a cognitive dimension. The wetland stimulated Hafsa's curiosity to learn about nature. Environmental damage in their hometown filled the children with anguish (Fried, 2018). The overwhelming reaction was one of disgust and anger at the perpetrators and frustration with other people inaction.

Voice of Nature - Relating to Nature

This meta-theme addresses the second research question by highlighting two ways children expressed a sense of shared identities. On one hand, children immersed themselves in 'nature's shoes' and expressed nature's point of view on human intervention. On the other hand, children used metaphors of nature to express their personal feelings. Children's empathy for nature and grief at degradation led them to use symbolization and metaphors to anthropomorphize nature of anger, frustration and contempt. However, Nature's 'Voice' was

also nuanced as it recognized that humans may be caring, loving, and exciting. The children also used nature to express their own problems, shortcomings, and challenges.

Voice of the Author - Advocating for Nature

This theme further addresses the second research question by explaining how and why children's meaning-making manifested itself in books. Like the Voice of Nature, the Voice of the Author called upon memories of the nature program to write and illustrate to the books. However, in this case, the meaning-making was concretised and had public expression. The children believed that their books were the medium through which nature's voice could be amplified to the entire world and bring about change. In a sense, the Voice of the Author was an integration of the Voice of the Children and the Voice of Nature and an expression of children's sense of agency and purpose. Children called upon their memories of being with nature to create the settings, plots, and characters for their books. Aysha's book didn't mention any specific place, but the illustrations revealed her thinking. Her school, which she said was very important to her, appeared in her illustrations as does Manadi, a very overcrowded and traffic-ridden part of Chennai. The environmental problems were those they felt were most relevant. Rabia painted a wide canvas of the pollution problems faced by Chennai while Aysha focused on vehicular pollution. Musa, Rifa, and Hafsa highlighted how construction destroys habitats for animals, but their settings and characters were very different. The inspiration for the characters lay in the individual meaning-making of real experiences. Hafsa and Musa took on the identity of the animal who was their book's protagonist and spoke through that animal about issues they felt strongly about. The storybook writing project provided a means for children to translate the meaning-making of their nature experiences into storybooks. The children were convinced about how imperative it was for them to act. The children had an innate belief in their power to create a change through their storybooks. Rifa said she undertook the project once she realised that she 'should use my power as an author to spread a powerful message'. Hafsa was more nuanced '…power isn't really in my hands', but 'your book has ability to change the world'. Her words are peppered with a series of conditional statements,

> *...if each of them makes a resolution that I should not, probably be a part of something or later on, take some water body and it might make a difference, because every drop makes an ocean, right?*

However, Aysha had a strong belief in the inherent goodness of people, especially other children as 'kids would know that pollution is real, and knowing that it affects people, would make them want to do as much as they can to help'.

Shortcomings and areas for further research

This research is emergent, exploratory, and bounded by the context in which it took place. As an interpretative phenomenological study, it reports children's perceptions as interpreted by the researchers. Further research should be done to investigate the process of nature connectedness and place attachment for children of the global south especially with a post humanist lens. Moreover, qualitative studies, especially using the grounded theory approach, should be conducted to understand the role of play in fuelling children's arts-based environmental activism.

Conclusion

While the results of this study are not generalizable, they reinforce theoretical and other empirical work on the process of nature/place connectedness but add further dimensions. First, it is a qualitative study that brings Indian children's voices on their meaning-making to the fore. The urbanized children deeply appreciated their encounters with the rarely visited biodiversity hotspots in Chennai. The interaction made them love nature and grow to see it as a part of themselves. Seeing degradation due to urbanization filled children with a sense of grief and loss. This prompted an act of ventriloquism, where they lent their voices to nature to indite human society. This part of the results emphasises the importance of situating nature education programs in the local place to make learning contextual, meaningful, and connected with children's lived realities and reinforces other research conducted in Western settings with adults and children. But the crucial part lay when the voices of the children and their representation of the voice of nature, blended to create the narrative voice of the author. This provided an avenue for environmental action which helped build self-efficacy. Hence, nature education organization should considering including components of environmental action in their outreach programs.

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A Remote Collaborative Decision-Making Training Game With a Real-Person Non-player Character

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Abstract

Decision making is a very important skill, under the COVID-19 pandemic environment, remote work is likely to become a future trend, and remote collaborative decision-making will become an important workplace competency in the future. Therefore, remote decision-making training activities that combine game mechanics and realistic situations should be a potential research topic. In this study, we designed a remote collaborative decision-making training game, "The Case of the Missing Xiaozhu", and combined highly realistic real-person non-player characters (RNPC) as police officers and forensic teams to provide scaffolding for learners in their decision-making process. Through continuous exploration, investigation and forensics, and collaboration and division of labor among the team, learners form search teams to find the missing girl, and make decisions to successfully locate the possible suspects. This study conducted a preliminary empirical test with five participants who participated in the game experience. The study initially measured the learners' flow, game acceptance and perception of game design elements. According to the descriptive statistical analysis, the mean score of flow was 4, the overall game acceptance was above the median, and the game design element also received an average score of 4.4. Through the preliminary results, this study found that using the RNPC mechanism to enhance the game's realistic context and social interaction may help to improve the learners' flow and decision-making process. In addition, the game received positive feedback from the learners in terms of game design.

Keywords: Real-Person NPC, Educational Game, Situated Learning, Scaffolding, Decision-Making Training, Online Distance Learning

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Introduction

Decision-making and analytical thinking are important competencies in the past few years (WEF, 2020), and in the context of the COVID-19 pandemic, remote offline collaboration has become the trend of the day, hence the increasing popularity of digital game-based learning (DGBL) in education. (Bos & Shami, 2006; Pata, Lehtinen, & Sarapuu, 2006; Wishart, Oades, & Morris, 2007), DGBL is also effective in enhancing learners' learning effectiveness (Kiili, K., 2005), and in providing participants with a vivid and realistic learning experience (Prensky, 2003).

Contextual learning is a learning approach that explores and gains learning effectiveness and motivation through real-world situations and role-playing mechanisms (Sedig, 2008). However, most digital games today are relatively poorly designed in terms of realism, which not only degrades the gaming experience (Cross & Edmonds, 2003), but also makes it difficult to generate motivation and flow problems. In order to overcome this problem, a real-life non-player character (hereinafter referred to as RNPC) mechanism was added. Online educational games using RNPC can effectively promote learner engagement and performance (Shu-Wei.L, 2021).

Based on cognitive and flow theories (Lin & Hou, 2016; Hou & Lin, 2015; Hou & Liu, 2015; Hou et al., 2016), this study developed a contextual remote collaborative decision making game called "The case of the missing Xiaozhu". A good state of flow not only enhances engagement and motivation, but also allows learners to be fully engaged in the activity and have good learning outcomes. (Engeser, 2012). The purpose of this game is to develop the decision making power of the participants and evaluate their decision making performance, and to explore the learners' flow state, game acceptance, and game design elements, and to extend the study by evaluating the initial results of the game to explore the issues that can be studied later in this study.

Figure 1. *Game cover of "The case of the missing Xiaozhu"*
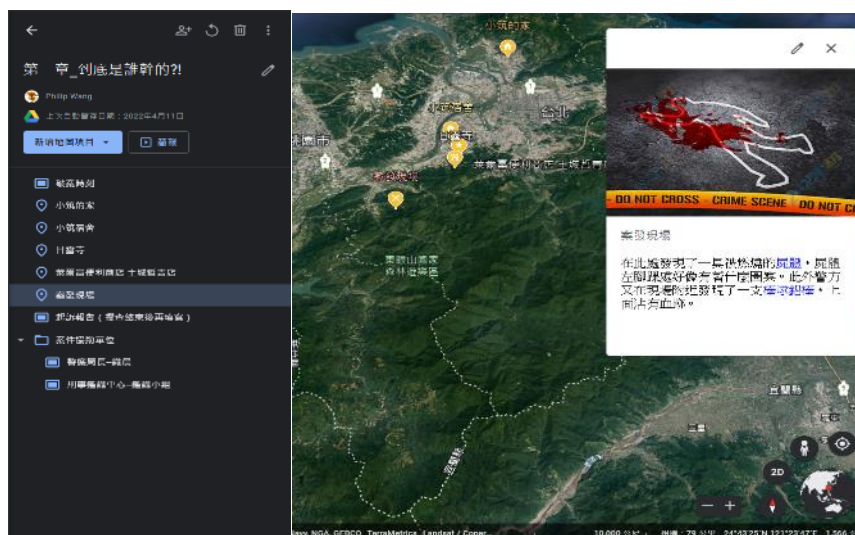
Figure 2. *Game surface in "The case of the missing Xiaozhu"*

Methods

The game in this study is called *"The case of the missing Xiaozhu"*, which is an online collaborative decision making game for training decision making and evaluating decision making performance. The game is designed using Google Earth, Google Jamboard, Gather Town, and Google Meet for game explanation. In addition, we added the RNPC mechanism to enhance the game's realism and the provision of related scaffolding.

The game allows them to use the internet to get any information and tips, and the process allows the learners to discuss and communicate with each other. And use their analytical, planning and decision making skills to investigate the case and finally find the Suspect. Surface in game is shown in Figure 1~2.

A total of 6 participants were recruited online and divided into 2 groups for this game. All participants were over 20 years old, and none of them had been exposed to the game before the test. However, one player was not able to play the game completely due to the hardware device, so the results of this player will not be included in the analysis.

Results and Discussions

The initial study of this game was designed to assess learners' flow, game acceptance and game design elements in the game. Based on the descriptive analysis and one-sample t-test of learners' flow scales, game acceptance scales, game design elements, we know that learners actively participated in this game. The overall flow score (M = 4.073, SD = 0.052) was significantly higher than the median3 (t = 46.283, p < 0.000). On the Flow antecedents, the challenge-skill balance and Goals of an activity were both higher than 3.5 points. In addition, in Flow experience, "The Case of the Missing Xiaozhu" provides attention, time cognitive change, and self-contained goals. Even the scores of Concentration, Time distortion and Autotelic experience have reached a high score of 4.7 or more.

Also, overall game design element scores (M = 4.4, SD = 0.141) were significantly higher than the median 3 (t = 22.136, p < 0.000) and even close to 4.5, indicating that learners found the game interesting and agreed with the design elements in the game.

Table 1. *Independent sample t test of Gameplay flow, Game acceptance, Game design elements*

Dimension	M	SD	t	p
Flow antecedents	3.56	0.25	4.989**	0.01
Challenge-skill balance	3.70	0.45	3.500*	0.03
Goals of an activity	4.30	0.67	4.333*	0.01
Unambiguous Feedback	3.20	0.67	0.67	0.54
Control	3.20	0.91	0.49	0.65
Action–awareness merging	3.40	0.55	1.63	0.18
Flow experience	4.50	0.24	13.805***	0.00
Concentration	4.75	0.56	7.000**	0.00
Time distortion	4.80	0.45	9.000**	0.00
Autotelic experience	4.70	0.33	11.662***	0.00
Loss of self-consciousness	3.30	1.20	0.58	0.61
Overall Flow	4.07	0.05	46.283**	0.00
Game acceptance	3.51	0.45	2.55	0.06
Game design elements	4.40	0.14	22.136***	0.00

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Conclusion and limitations

"The case of the missing Xiaozhu" is a contextual collaborative decision-making game that combines contextual learning, cognitive design and RNPC mechanism. The theme of the game shapes the situation from finding the missing girl at the beginning to finding the murderer and the evidence after the girl is killed, which greatly enhances the motivation and mental flow of the test subjects. In addition, because the game is adapted from a real social case, it can also directly and naturally enhance the authenticity of the situation. The preliminary results of this study showed that the subjects had active participation and most of the evaluations were positive. In addition, there was a significant difference between the median 3 and the median 3 in terms of high flow and high acceptance of the game, both of which scored above 4. In addition, perhaps because of the difference from previous studies, this study is mainly oriented to ability training rather than domain-specific knowledge learning. In the future, if further research is needed, we can investigate the design and effectiveness of this game in cognitive scaffolding, as well as the differences between the high and low groups in the decision-making process.

Acknowledgments

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Design and Evaluation of a Contextual Distance Management Training Game With a Real-Person Non-player Character Mechanism

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Abstract

As the COVID-19 epidemic continues, teleconferencing has become an important mode of company operation, and many professional training courses are also taught online. However, in the absence of interactive mechanisms, learners may lack motivation and focus, which may reduce the effectiveness of learning. Game-based learning can enhance learners' motivation and concentration, and the combination of contextual design and games is expected to increase learners' engagement and alleviate excessive anxiety. Game-based learning can also introduce scaffolding to guide learners to reach higher-level thinking and problem-solving skills, thereby enhancing learning effectiveness. In addition, game situations of high fidelity can achieve learning transfer effectiveness. In this study, we propose a highly realistic distance game-based learning approach by designing a multi-dimensional cognitive scaffolding game *Strategist's Challenge* with a real-person NPC mechanism on the Gather platform, which is an online business management training game based on a real-world company environment to develop learners' knowledge and ability in strategic planning. The participants were 11 adults from Taiwan, and the objectives of the learning activity were to complete the SWOT analysis of the company in the game scenario and to propose the best strategic planning task. In this study, the flow and anxiety scales were measured. Based on the descriptive statistics, the learners scored above the median of 3 (of the 5-point scale) on all nine dimensions of flow, with the mean values of clear goals and sense of control being higher than 4.00. The learners' anxiety scores were close to the median of 3.00, indicating that the learners showed moderate anxiety during the game. The preliminary results of the study indicate that the mechanism designed in this study is effective in enhancing learners' flow and moderate anxiety in learning.

Keywords: Real-Person NPC, Educational Game, Situated Learning, Scaffolding, Strategic Planning Training, Online Distance Learning

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Introduction

In the implementation of online learning courses, learners often encounter insufficient learning motivation and learning anxiety derived from a lack of concentration and lack of situational context, which reduces learning effectiveness. Phelps & Vlachopoulos (2020) found that because the synchronous learning environment is not conducive to low-autonomy learners, teachers must specially design the interactive mechanism in teaching and combining various media and online tools, such as YouTube or online learning tools (e.g., games). Therefore, by improving learning motivation through gamification, learners can be more devoted to the thing, generate a flow experience, and conduct in-depth learning. Gamification-based learning can improve critical thinking and strategy skills (Savard, 2015), and problem-solving skills (Sung et al, 2015). Situational learning is learner-centered, placing learners in a learning situation, The process involves action learning, reflective exploration, and feedback, and its purpose is to enable learners to interact in a diverse environment, and to develop and construct their knowledge and ability. Zahedi et al (2021) mentioned that gamification can provide a unique situational context that changes learners' attention and increases their learning performance and engagement.

This study proposed a new game-based learning method based on the real-person NPC mechanism. *Strategist's Challenge* is an online digital game designed for situational business management training. To achieve the fidelity effect of the company's environment, the *Gather Town* platform was used to present three floors company. Environmental architecture design, including conference rooms, factories, warehouses, offices, etc. as a total of 13 departments were developed. In addition, multi-dimensional strategic scaffolding, including cognitive scaffolding, metacognitive scaffolding, tool scaffolding, procedural scaffolding, emotional scaffolding, and peer scaffolding, was introduced into each department, and each NPC (Non-Player Character) was placed in each department to present information about the company's current situation and the communication of information about the external market environment. In addition, in this study, real-person NPCs play multi-dimensional scaffolding designs, giving learners different guidance at the right time during the activity, allowing the scaffolding to generate a mixed mechanism of active and passive, reducing cognitive load, enhancing learning flow, and then express emotional dimension to encourage learners and reduce learning anxiety. The goal of the game is to allow learners to visit each department from the perspective of a professional management team. After collecting a large amount of information in a fixed period of time using different collaboration modes, they can then discuss with their peers and complete the two-stage tasks of SWOT analysis and optimal strategic planning. The learning goal of this game is too immersive experience learners in the company situation context and to simulate the learning process of company strategy planning, to enhance learners' experience and judgment in strategy planning, and to achieve the effectiveness of learning transfer.

Methods

The participants in this study were 11 adults (2 males and 9 females) in Taiwan through a preliminary case study test. The participants were registered as a team on the internet, with three to four participants in each team. Each participant used a personal computer and participated in the learning activities in their individual space. The activity platform was designed using *Gather Town*, as shown in Figure 1. In *Gather Town*, a situational immersive scene is designed and matched with various cognitive scaffolding messages, as shown in Figure 2. The Google Meet voice function is used to do synchronous collaborative

discussions online to complete the activity learning tasks. This analysis case is to provide a company's current internal situation and external environment information at this stage. After the analysis, five major items were recorded: strengths, weaknesses, opportunities, threats, and suggestions for the best strategic planning for the case company.

To assess the participant's learning flow, the Kiili Mind Flow Scale (2006), translated and revised by Hou and Chou (2012), was used for this study. The learning flow scales include two dimensions: flow antecedents and flow experience. All scales were scored on a five-point Likert scale. The reliability of the learning flow questionnaire (Cronbach's alpha = 0.881) indicated a high degree of internal consistency. For the assessment of participant anxiety, the Affective Filter Hypothesis developed by Krashen (1981; 1987) was used as a reference, and the Chinese version was adapted to the Learning Experience Scale by Mei-Hsueh Hung (2001). In this study, the content of the Activity Anxiety Inventory (AAI) from the Learning Experience Scale (LES) was used and modified to make the narrative more consistent with this study. with a total of 8 questions. The reliability of the activity anxiety scale (Cronbach's alpha=0.748) was found to be reliable. The learning activity procedure began with an activity presentation (10 minutes), a pre-test (10 minutes), Game Task 1 (40 minutes), and Game Task 2 (30 minutes), followed by a post-test (10 minutes) and a process questionnaire (10 minutes).

Figure 1 *Gather Town-based game: Strategist's Challenge*

Figure 2 *Relevance message guidance in different departments*

Results and Discussions

The goal of the *Strategist's Challenge* is to complete two stages of SWOT analysis and optimal strategy planning. Table 1 shows the descriptive statistics analysis and one sample t test of the learning flow after completing the two stages of the task. The overall flow (M=3.78, SD=0.49) was significantly higher than the median of Likert scale (i.e., 3) (t=5.22, p<0.001). The mean values of flow antecedents (M=3.89, SD=0.56), flow experience (M=3.68, SD=0.54), and all other dimensions of flow were above 3.00. Among them, the mean values of two dimensions, goals of activity and sense of control, were even higher than 4.00. It indicates the overall game design mechanism that allows learners to have a clear activity goal and a high sense of control to actively engage in game tasks and achieve a high level of flow experience. To improve the concentration of online learning goals.

Table 1 *Descriptive statistics analysis and one sample t test of learning flow*

Dimension	*M*	*SD*	Dimension	*M*	*SD*
Overall Flow	3.78	0.49			
Flow antecedents	3.89	0.56	**Flow experience**	3.68	0.54
Challenge-skill balance	3.91	0.80	Concentration	3.73	0.72
Goals of an activity	4.00	0.81	Time distortion	3.41	1.00
Unambiguous Feedback	3.73	0.72	Autotelic experience	3.68	0.78
Control	4.05	0.65	Loss of self-consciousness	3.86	0.92
Action–awareness merging	3.77	0.79			

Table 2 shows the Descriptive analysis and one sample t test of learners' anxiety. The overall anxiety (M=2.95, SD=0.65) shows very close to 3.00. Moderate anxiety is helpful for learners (Wang et al., 2015) and is one of the important indicators of sustained learning flow during play activities.

Table 2 *Descriptive analysis and one sample t test of learners' anxiety*

Dimension	*M*	*SD*
Overall Anxiety	2.95	0.65

Conclusions and Limitations

This study developed an online functional training game *Strategist's Challenge* based on the daily operation situation of the company. The game is based on the daily operation situation of the company and uses a real-person NPC, Executive Assistant Kim, to simulate the feelings of senior employees towards new employees and to help them visit each department and related issues. The above data showed that there was a significant higher performance of learning flow than 3, and the anxiety was also close to median 3. Initially, this study combined with the real-person NPC design to improve the learning flow of online learners

during the learning process. More sample sizes can be added for future studies. And to explore the same online game design, whether there is a combination of real-person NPC online learning could be used for a more in-depth comparative analysis of learners' perceptions of motivation, anxiety, learning effectiveness, scaffolding effectiveness, and game fidelity.

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An Analysis of the Acceptance and Anxiety of a Historical Strategic Planning Game by Combining Real Person Non-player Character Mechanism

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Abstract
Under the influence of Covid-19, distance synchronous learning has gradually become popular. Online history courses are a major challenge for teachers, as the one-way lecture and assessment may make learners lack motivation and even cause learning anxiety. History educational games allow learners to take on the role of historical figures, have the opportunity to experience historical events in simulated situations. The highly realistic game situation is expected to provide learners with a good learning experience and further reduce learning anxiety. In this study, we designed a historical strategic planning game, "The Battle of Yiwei", which incorporates a real-person NPC mechanism. The instructor acted as an NPC, and the learners would play the role of historical figures in the game and explore and interact with the real-person NPCs in a realistic historical scenario to complete historical strategic planning. The study also conducted a preliminary assessment with six participants. The objectives of the learning activities were to complete the experience of three historical events in the game and to conduct strategic planning. This study also initially measured the game acceptance and activity anxiety of the learners. Based on the descriptive statistics, game acceptance and game elements were significantly higher than median of the five-point scale (i.e., 3), and activity anxiety was below the median. The preliminary results indicated that learners rated the game highly, both in terms of its usefulness for learning historical knowledge and its smoothness of operation and activity anxiety was low.

Keywords: Real-Person NPC, Online Educational Game, History Learning, Game Acceptance, Activity Anxiety

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Introduction

Under the influence of Covid-19, distance synchronous learning is becoming more popular and has become one of the choices for many teachers and students, and educational games are no exception. History courses have been severely affected by the epidemic, distance learning is a test for both teachers and students, and technological advances are a challenge for learning history in this era (Sulistyo et al., 2021). We always know the successes and failures of historical battles in books, and the historical progress, but we seldom know the actual situation of the battles. Historical games allow learners to understand what happened in the past, and the realistic world provides learners with a good learning experience and knowledge related to many historical events, and historical games are more helpful for learners' historical learning (DeFreitas , 2006; Ymran et al., 2018). Therefore, our research team (Mini Educational Game development group in e-Learning Research Center, National Taiwan University of Science and Technology, NTUSTMEG) has developed a historical strategy game with Gather Town. The historical educational game "The Battle of Yiwei" recreated the historical scenes, as shown in Figure 1. The game allowed learners to understand the thoughts and experiences of historical figures at that time in each event, and also to piece together the complete context of historical battles through the acquisition of information, and finally to complete the tactical planning. Challenging tasks can also motivate learners' history learning (Cruz et al., 2017). Learners took on the role of historical figures in the game and performed multiple tasks guided by real-person NPCs. In addition, learners can also send investigators to the front line to obtain historical information. And answer on Google Jamboard to complete the strategic planning, as shown in Figure 2. The purpose of this study is to analyze learners' game acceptance and activity anxiety through a history strategy planning game, so as to evaluate the initial results of the game and explore the future development direction.

Figure 1 *The starting screen of the game "The Battle of Yiwei"*

Figure 2 *The answer page of a task*

Methods

The participants in this study were recruited through a recruitment process, and two groups (6 in total) were engaged in the learning activities. In order to assess learners' game acceptance, this study modified the technology acceptance scale proposed by Davis (1989), which contains two dimensions, preceived usefulness, preceived ease-of-use. In addition, the game design elements were evaluated using the five-point Likert's scale with reference to the game motivation elements proposed by Hou (2016). Krashen (1987) developed the Affective Filter Hypothesis, and the Chinese version was adapted to the Learning Experience Scale by Hung (2001). To assess learners' activity learning anxiety, this study adapted the Activity anxiety inventory translated by Hung (2001) and used a five-point Likert's scale. In order to evaluate the game "The Battle of Yiwei ", the whole learning activity was conducted for 90 minutes. It included a role-playing phase (30 minutes), game event 1 (20 minutes), game event 2 (20 minutes), and game event 3 (20 minutes).

Results and Discussions

In this study, SPSS was used to analyze the Activity anxiety scale and the Game acceptance scale. Table 1 presented the statistical results of activity anxiety, with overall anxiety (M=2.15) being below 3 (median=3 on a 5-point scale) and reaching a significant. It indicated that the learner's anxiety in the game was low. According to the statistical results of game acceptance, the overall acceptance (M=4.35), sub-dimensions of preceived usefulness (M=4.50) and preceived ease of use (M=3.94) were significantly higher than the median; game design elements (M=4.37), sub-dimensions of uncertainty (M=4.67) and achievement (M=4.00) were higher than 3, while the sense of control (M=3.83) was not significant. The results showed that learners were highly receptive to the game, and that the game was cognitively helpful to learners, acquired relevant knowledge, and was easy to operate.

Table 1 *Descriptive statistics analysis and One-Sample Wilcoxon signed-rank test of Gameplay anxiety, Game acceptance, Game design elements*

Dimension	M	SD	p
Gameplay anxiety	2.15	0.58	.027[*]
Game acceptance	4.35	0.14	.027[*]
preceived usefulness	4.50	0.69	.026[*]
preceived ease-of-use	3.94	0.68	.044[*]
Game design elements	4.37	0.29	.026[*]
Sense of control	3.83	0.98	.102
Uncertainty	4.67	0.52	.023[*]
Achievement	4.00	0.63	.034[*]

[*]$p < 0.05$, [**]$p < 0.01$, [***]$p < 0.001$

Conclusion and Limitations

This study designed a historical strategic planning game with a real-person NPC mechanism that can help learners explore and plan in the game map. According to the statistical results, the overall anxiety was below the median, which means that learners did not feel too much anxiety during the game. It was presumed that the addition of real-person NPCs guided the learners in the game and gave enough time for strategic planning, thus alleviating the learners' anxiety about the activity. The acceptance rate of the game was higher than 3, which

showed that the learners had a high evaluation of the game "The Battle of Yiwei" and a high acceptance of the knowledge given and the operation of the game. This study was not significant in terms of activity anxiety, however, moderate anxiety can be helpful for learners (Wang et al., 2015). Therefore, the ARCS motivation scale proposed by Keller (1987) and the Mind flow scale (Kiili, 2006) can be used in the future to explore its correlation with activity anxiety and to assess learners' flow status during games. This is an opportunity to gain insight into the degree of learner motivation and flow status in the application of the strategic planning game designed and developed by the research, which incorporates a real-person NPC mechanism for teaching.

Acknowledgments

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Feedback in L2 Academic Writing: Prescriptive or Developmental?

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Abstract

In Academic Writing Courses, there are various ways in which students can receive feedback on their writing: teachers can provide prescriptive feedback (direct error correction), guided developmental feedback (inquiry-based learning process), a combination of both or they can encourage collaborative peer feedback. Constructive peer feedback provided at the opportune time, helps learners to clarify their own ideas, develop a critical eye when reading their classmates' writing, and nurture reflective thinking. The central question which guided this research was: Which type of feedback do students feel is most beneficial to the writing process? Feedback was provided on two writing assignments mid-semester and at the end of the semester via Google Docs. All comments were written in the Google document so the teacher could monitor the quality of feedback. A survey administered to students at the end of the semester determined which style of feedback students preferred and at which point of the writing process it was most effective. Conclusions point to a combination of different types of feedback at the most opportune times for student to assist with their writing development.

Keywords: Academic Writing, Peer Review, Prescriptive and Developmental Feedback

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Introduction

Academic Writing courses are typically a part of every curriculum in universities worldwide. The rationale varies among institutions, but generally, it can be seen as beneficial in that academic writing promotes learner development in several ways—it helps students to develop critical thinking and reasoning skills, become effective communicators to various audience, expand their range of vocabulary, increase complexity in expressions, understand how to evaluate writing, and improve research skills. Academic writing classes at the university in which this research took place is a mandatory 2-credit for freshman students. This means that to graduate, they must successfully pass this course. Students enter the university with varying levels of second language proficiency and must meet specific guidelines outlined by the university. In order to meet course aims, teachers are encouraged to give timely feedback so students are aware of their progress throughout the semester. Especially for teachers who have multiple classes of 25-30 students, giving feedback can become exhausting and the quality of feedback diminishes depending on the length of the piece of writing. As such, peer-feedback practices along with teacher guidance are encouraged.

Numerous studies have been conducted on various types of feedback in Academic Writing courses. In these studies, researchers have practiced peer feedback as a verbal or written activity done by the teacher or students. Within verbal and oral feedback can be found an even more intricate break down of terms used to describe feedback such as developmental, prescriptive, peer-to-peer, evaluative, guided, or self-assessed. This begs the question: How do teachers decide the most effective approach to develop students' writing abilities? This was the initial question which started this research project. As students delved deeper into the writing process during the semester, other questions emerged:
1. What are students' perceptions of feedback?
2. How do students rank assessment categories in order of importance?
3. Do students prefer teacher prescriptive feedback, teacher guided developmental feedback, or student collaborative feedback?

These were the questions which framed and guided this study. Its fundamental purpose was to determine the most effective way to provide feedback to facilitate learner development.

Theoretical Foundations

There were several different feedback styles which the researcher considered after reading studies that showed advantages and disadvantages of specific types of feedback. From these readings the researcher decided on three types of feedback that would best meet the needs of freshman second language learners who were being introduced to academic writing for the first time—Teacher prescriptive, teacher guided, and collaborative peer feedback. Student essays were being graded in four categories: format, accuracy of expression, structure, and content, and thus required a different type of feedback depending on language proficiency.

Teacher Prescriptive Feedback

In the case of teacher prescriptive feedback, the teacher provides direct error correction on student writing (Hyland & Hyland, 2001; Pham, 2022). This means, in essence, that the teacher points out specific errors in, for example, word form, vocabulary choice, grammatical patterns, or structural weakness, and then explains how to improve the essay. Teacher

prescriptive feedback was thought to be the most desirable method for lower proficiency learners who required more support; however, it also benefitted higher proficiency learners who could feel more confident about their writing ability from reading the teachers words of praise as well constructive criticism on how to improve further. In this way, the teacher solves the problems for the students by pointing out strengths and weaknesses in their academic writing ability. Although the results of teacher prescriptive feedback can be positive, the major drawback is that it does not help the learners develop their own awareness of or responsibility for specific writing choices as there is minimal processing of information.

Teacher Guided Developmental Feedback

In the case of teacher guided developmental feedback, the teacher provides indirect error correction (Johana et al., 2012; Morra & Romano, 2008). In this method, the teacher points out that there is a mistake, but does not explain what it is specifically. Learners are expected to use an inquiry-based learning process to critically reflect on their writing and make self-directed decisions. This type of feedback was thought to be more suitable for learners who had a higher proficiency and level of maturity. The idea is that through self-inquiry, students are able to become more aware of specific learning points on their own which would foster long-term language acquisition (Ferris & Roberts, 2001).

Table 1 provides a summary of developmental vs. prescriptive methods of feedback.

Prescriptive Feedback	Developmental Feedback
• Instructor tells the student specifically what errors have been made and how the essay can be improved • More beneficial to lower proficiency learners • Minimal processing of information which results in short-term learning	• Instructor points out that there is an error but does not specifically tell student how to fix it • More beneficial to students who are capable of self-directed learning • Deeper processing of information which leads to long-term learning and ability to think critically and problem solve.

Table 1: Developmental vs. Prescriptive Feedback

In addition to teacher feedback, the researcher felt that students could hone their writing abilities further through collaborative feedback.

Student Collaborative Feedback

In the case of student collaborative feedback, the students provide either direct or indirect error correction (Alshuraidah & Storch, 2019; Rollinson, 2005). The differences with teacher feedback are mainly two. Firstly, students step into the shoes of the teacher in giving feedback and must thus critically assess their partner's writing in the four assessment categories. This requires a deep level of understanding of language structure and academic writing conventions. The second is the duration of time required. That is, collaborative feedback in the form of dialogue (written or verbal) takes longer to share and process. The teacher as "expert," is usually able to give commentary quickly using a familiar repertoire of phrases, whereas students tend to take longer to formulate their opinions and ideas about an unfamiliar piece of writing.

For this research, the ideal type of feedback appeared to be a combination of teacher direct, teacher indirect, and student collaborative. It was thought that by introducing each type of feedback at an opportune time would help learners to gradually build their skills and increase learner confidence (Morgan et al., 2014).

Research Background and Data Collection

This research took place at a national university in Japan with approximately 150 freshman students across six faculties. These students had to take this Academic Writing course to satisfy the requirements for graduation, thus it was important for them to perform at a sufficient level. The expectation of the course was for students to understand basic academic writing conventions and write two essays over 16 weeks. Table 2 shows how the academic writing course was structured.

Lessons	Activity	Type of Feedback
1-3	Review of basic writing skills including paragraph structure	Teacher direct feedback
4-8	Basic structure of an essay	Teacher guided developmental feedback
9-16	Academic research paper including citations and references	Student collaborative feedback

Table 2: Basic structure of the freshman Academic Writing course

Data was collected throughout the semester during feedback sessions. In lesson 3, direct written feedback was given on paragraphs via Google docs as a model for students to observe how to give feedback (see excerpt 1). At this time, students did not know that they would be expected to give feedback on another student's writing later in the semester. The aim was to provide a positive example of how to give constructive feedback.

Excerpt 1: Example of teacher prescriptive feedback
Your topic sentence is missing a controlling idea. A topic sentence should be one sentence which includes a topic and a controlling idea. The controlling idea tells the reader what your paragraph will be about.

During lessons 4-8, the teacher began to give students more responsibility for their writing choices. Instead of pointing out errors and explaining how to fix it, the teacher became more indirect in order to encourage students to reflect on the problem and review the textbook to find the solution. As above, comments were given in written format in a Google doc, however time was also allotted during class time for students to ask the teacher for help if they could not self-diagnose the problem.

Excerpt 2: Example of teacher guided developmental feedback
Your topic sentence can be improved. Take a look again at page 60 of your textbook.

In lessons 9-16, students engaged in collaborative peer feedback in which they had to sit with a partner and give constructive criticism on essay format, structure, and content, but not accuracy of expression. Instead, the teacher encouraged students to use software to check grammar and spelling on their own for homework. Students were further taught how to use a thesaurus earlier in the semester to improve choice of vocabulary. This enabled collaborative pairs to make better use of the 90 minutes of class time. Student feedback was mostly direct

given both verbally and in written format. There were some indirect comments or questions when students were unsure of a specific writing point. Most importantly, students were asked to engage in a dialogue with students in the Google Doc so that comments were not viewed from the standpoint of "teacher" (see excerpts 3 and 4).

Excerpt 3: Example of <u>direct</u> student Collaborative feedback
> *A: It may be better to use "this essay" or "this paper" instead of "I". In this case, I think "I believe that" is not necessary...*
> *B: Yes, the use of the first person should be avoided.*

Excerpt 4: Example of <u>indirect</u> student Collaborative feedback
> *A: Does the "it" indicate smartphone?*
> *B: Actually, "it" indicates "the technology," but it's misleading. I'll change it.*

Towards the end of the semester, the teacher facilitated these feedback sessions by following what students were commenting on, and only engaging with students if the advice given was incorrect. In short, the teacher engaged in a sort of "meta" feedback style (McCarthy & Armstrong, 2019).

Excerpt 5: Example of "meta" feedback
> *A: You need "Miyahara et al." here because there are two authors and you also need a publication date*
> *B: You are right, thanks!*
> *Teacher: Actually, "et al." should be used when then are **three** or more authors. You are however correct about needing a publication date. Good catch!*

Results and Discussion

To answer research questions (RQs), a survey was administered to students at the end of the semester. 209 learners completed the survey which included both open- and closed-ended questions. Analysis of responses identified the percentage of students who thought feedback was useful (RQ1), which assessment categories they required most and least help with (RQ2), and the type of feedback preferred (RQ3).

RQ1: What are students' perceptions of feedback?

Of the 209 respondents, 203 (97%) considered peer feedback beneficial in improving academic writing skills and six students thought that it was not helpful. There were several reasons that students found it useful. The most common reasons were:
- Improves the overall quality of the essay by decreasing the errors
- Improves the quality of ideas by receiving a second opinion or perspective
- Students can communicate freely and frankly about their essay's weaknesses
- Thinking about how to write helps one to become a more critical thinker

For the students in this study, receiving feedback clearly contributed to learner development in the academic writing classroom. Through feedback, students were able to gain a deeper understanding of academic writing conventions (similar to findings by Villamil & Guerrero, 2006; and Yu & Hu, 2017); to understand themselves better as writers (Yu & Hu); engage in meaningful dialogue about academic writing (Teo, 2006); and improve critical thinking skills (Berg, 1999). Benefits for the teacher were mostly seen during collaborative peer feedback as

it helped to reduce the burden on the teacher to give timely feedback. When giving feedback on over 100 essays in an academic course using a process approach, teachers can spend hours giving feedback on one class. The researcher in the study had nine academic classes which made it difficult to give sufficient feedback in a timely manner. Implementing peer feedback lessons ensured that feedback was timely and of a higher quality.

For the six students who regarded feedback as unhelpful, they had two comments:
- Receiving advice from non-professionals is meaningless
- Academic writing follows a fixed structure so others can only help with content

In essence, these students considered the teacher to be the professionals and students to be receiver of instruction. These findings are also similar to that of Tsui & Ng (2000) and did not come as a surprise to the researcher. During collaborative peer feedback sessions, there were a few students who said that they could not check grammar because it was a category that they were not confident in which to give advice. The response to these students was to give advice on what they were confident about (such as formatting or structure) and be honest with the writer about not being able to provide advice on style of expression. In this way, students could understand which of the academic writing conventions they had learned deeply and those that they needed to improve. This helped in developing students' own awareness of their abilities and thus improve their self-efficacy. Regarding the comments about an essay having a fixed structure, in the future, the researcher will remind students that everyone in the class is at a different developmental level and that becoming a "professional," enables them to review their own knowledge of academic writing conventions and provides an opportunity to support peers who have not internalized the knowledge yet.

RQ2: How do students rank assessment categories in order of importance?

Students were asked to rank the four assessment categories to receive feedback in order of most to least important. In order of importance, students responded mainly that they preferred to receive feedback first on content, then structure, accuracy of expression, and finally formatting (see Figure 1). This is similar to research findings of Reynolds & Zhang (2022). That is, students felt that direct or indirect feedback on their content helped them to develop their writing skills more effectively, whereas they could focus on format on their own.
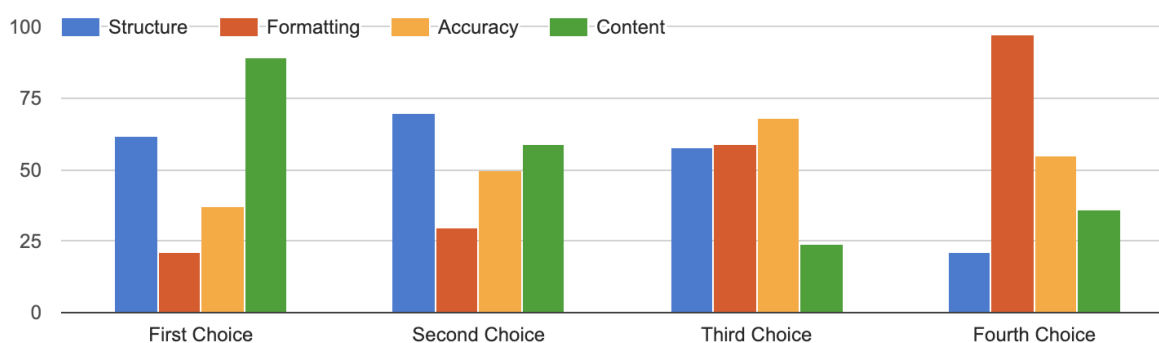
Figure 1: Student ranking of assessment skills

RQ3: Do students prefer teacher prescriptive feedback, teacher guided developmental feedback, or student collaborative feedback??

Research question 3 sought to identify students' preferred style of feedback. Overall, of the 209 responses, there was no clear majority in three areas. 38% of students preferred to reflect on their writing choices first before approaching the teacher for help. In a sense, students were keen on developing their independence, but they also recognized the need to have teacher guidance to confirm that they had made correct choices. 33% of students preferred for the teacher to point out all their errors in a prescriptive manner and inform them directly what to do to improve their writing. For future research in this area, it would be prudent to ask learners to self-assess their writing skills and use this information to compare feedback preference and perceived ability. 28% preferred student collaborative feedback to improve their essays. This shows that a combination of feedback types is probably most suitable for the academic writing classroom to meet the needs of all students. The final category asked students if they preferred to work independently without a teacher and only 3 students (or 1%) agreed. In essence, this indicated that teacher guidance was necessary in academic writing classes with students who were experiencing academic writing for the first time.

Figure 2: Student preferences of type of feedback

When asked to select who should give them advice in each category, the teacher, peers, or both, students responded as follows:

- Who should give advice on content? Peers and teacher (66%)
- Who should give advice on structure? Peers and teacher (58%)
- Who should give advice on mechanics? Peers and teacher (50%)
- Who should give advice on format? Teacher (49%)

From these results, the researcher had two main take aways: (a) how to redesign classroom instruction to ensure that feedback would be given at in a compressible and effective manner for learner development; and (b) the importance of developing an awareness of learners' self-efficacy. These insights will be discussed below.

Rethinking Classroom Instruction and Syllabus Design

From the data results, the researcher realized giving the most appropriate feedback at the opportune time and in a timely fashion was key to developing learners' writing skills. The progression from teacher direct feedback, then teacher guided developmental feedback to

student collaborative feedback was successful; however, the researcher realized that there were teaching points that could have been improved in each of these areas. First of all, it is important to review or teach how to do basic self-checks of grammar, spelling, and punctuation using word processing software (for example, Microsoft Office, Google Docs, Turnitin plagiarism checker, etc.) so they can check accuracy of expression and formatting by themselves. A second point that could have been improved was the type and amount of scaffolding given. Rather than simply providing direct teacher feedback for only three weeks, instructors must recognize that each class operates independently of each other and thus be more flexible in how to progress with feedback. Students in certain faculties such as Medical and Aeronautical Engineering had higher levels of English proficiency and maturity, whereas students in other faculties were less motivated when it came to learning English and required more coaxing. The final point which will be built into future courses is increasing the amount of time for critical and reflective discussions to deepen understanding of the writing process and rationale for writing choices. That is, encouraging student to discuss and self-evaluate for example, their choice of topic, outlines, thesis statement, or flow of ideas (in their L1 or L2) would help them to be more critical writers and promote responsibility in their learning. What the teacher hoped to accomplish was a movement away from professional advice giver to an inquiry-based model of learning.
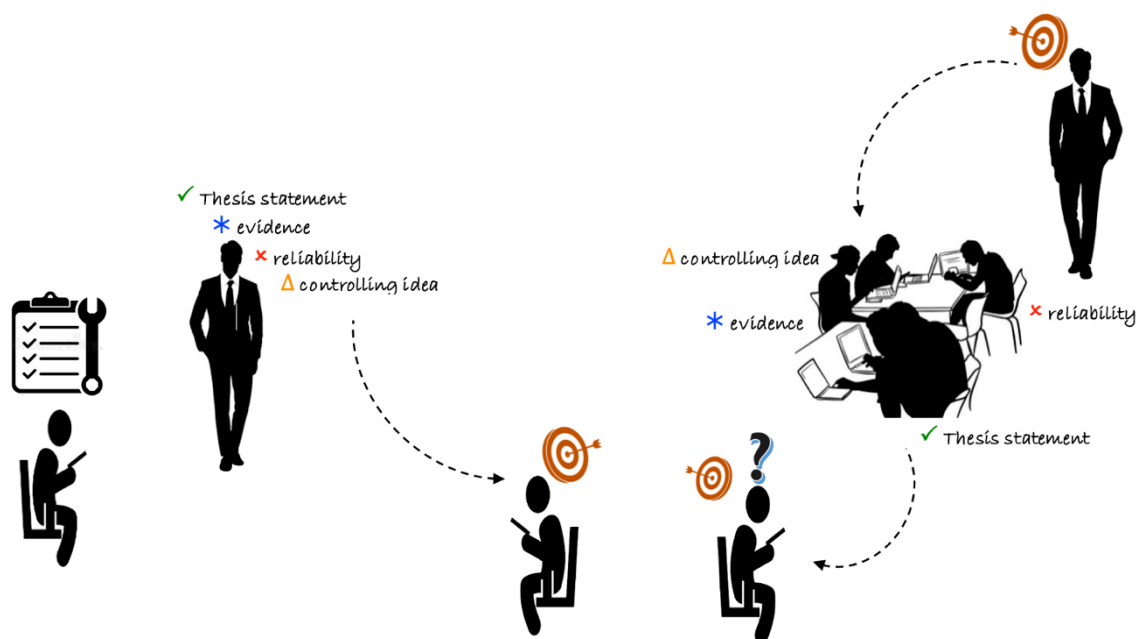
Figure 3. Rethinking classroom instruction and design

Developing an Awareness of Learners' Self-efficacy

Understanding learners' level of self-efficacy is essential to build learner confidence in giving feedback. Tools that were provided during the 16-week Academic Writing course were diagnostics, self-checklists, and the use of the comment feature in Google Doc so that students could engage in meaningful dialogue with the teacher as well as other students. What could be improved in future courses, as mentioned previously, is having more critical discussions. For L2 learners however, it can be difficult to formulate thoughts on the spot, thus including reflective questions at the end of each stage of the writing process will be a necessary step to partake effectively in discussions. For the teacher, being able to read self-reflections at critical points during the semester would help to understand students' level of understanding and how to proceed forward in the course. That is, reflections on learning

would inform the instructor which parts of the course content needed reviewing or if the course could proceed as planned. For both learner and teacher then, this Academic Writing course generated transformative learning and development.

Conclusion

How teachers decide the most effective approach to develop students' writing abilities is the question that began this action research project. After reading several articles, book chapters, and conference reports, the researcher was able to design an Academic Writing course that would meet the expectations of the curriculum and help learners to develop and hone writing skills. Findings in research literature are somewhat inconsistent but it mostly depended on research context. For this study, the researcher found a combination of feedback to be most beneficial for the students in this particular context—English as a Foreign Language in a national university in Japan. The researcher found that collaborative peer feedback should be complementary to teacher direct/indirect feedback and self-checks as a way of facilitating learner development. Further, student training through direct and indirect modelling of feedback is key to successfully learning and internalizing knowledge. One of the most important recommendations would be to include one technology training session during the semester to thave students practice the basics of word processing software to understand how to self-check formatting (margins, fonts, etc.), grammar, spelling, punctuation, and finding appropriate synonyms to improve word choice. This would allows the teacher more time to focus on essay structure, quality of expression (tone and formality), finding reliable sources, and writing logical content. In the end, it is the quality of feedback that should be central in any Academic Writing course as this is what transforms learners into more professional writers.

Acknowledgments

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Graduate Student Professional Development: Identifying Core Components

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Abstract

Graduate students are "professionals" in the sense that they are required to learn and transfer academic skills beyond the walls of the classroom to research and industry contexts. As such, graduate professional development (GPD) should be an integral part of every graduate program. However, many Japanese universities do not provide official services which can put graduate students at a disadvantage. There were two central aims in this study. The first was to investigate current programs and practices that encouraged GPD; and the second was to gain a first-hand account from students, professors, and industry experts regarding GPD, especially essential skills, knowledge, and experiences that they felt would be beneficial to perform effectively in research labs and the workplace. Surveys were administered and semi-structured interviews conducted to gather this information and then identify gaps in current GPD institutional practices and learner needs. Given the demand for specific skillsets in new employees, data was further analyzed to identify core skills necessary for academia and industry-related positions. The research concludes with specific recommendations of core academic and transferable 'real-life' skills and knowledge for GPD training programs so that students feel fully prepared for the experiences they will face during graduate studies and beyond.

Keywords: Graduate Professional Development, Learner Development, Life-Long Learning, Training Programs

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Introduction

Professional development programs are an integral part of the workplace to maintain high standards and best practices. In these programs, employees and managers document skills, knowledge, and experiences as a means of training new workers and enhancing work practices. Professional development programs are meant to facilitate ongoing improvement of an individual's competencies. Therefore, it is suitable for any situation in which an individual is required to maintain certain professional standards. In the case of this study, the researcher felt that a Graduate Professional Development (GPD) program would be integral to developing learners personal and professional identities. Although Japanese universities are known to have advanced laboratories and high-quality graduate schools, there is a lack of professional development programs and services to prepare students for situations they will encounter during and after their studies such as presenting at field-related conferences, networking with international colleagues for collaborative ventures, or participating in internships. Simply having strong research skills is not enough in today's world to perform successfully in a multitude of settings. Indeed, graduate students require professional skills such as being an effective communicator, problem-solving, and an ability to quickly adapt to various situations.

This study had three main aims. The first aim was to provide an accurate definition of GPD, specifically for second language learners in a Japanese university context; the second was to gain a first-hand account of students' readiness for GPD, especially essential skills, knowledge, and experiences that they felt would be beneficial to perform effectively in research labs and the workplace; and the final aim was to investigate current programs and practices that encouraged GPD and to determine if there were any gaps with the current curricula. It was felt that answers to these questions could further enhance current practices at the university. This paper will examine these three aims in detail and conclude by identifying core competencies that professional development programs could provide to prepare graduate students for life beyond their labs and classrooms.

Research Aim 1: Defining Graduate Professional Development

Although GPD can be widely seen as beneficial for learner development, there is no central definition as professional situations vary widely. Thirty years ago, Ducheny et al. (1997, p. 87) summarized the research literature at the time as GPD consisting mainly of three main elements:

    a) the importance of continuing training and familiarity with relevant research;
    b) the influence of a supportive peer group or mentor; and
    c) the organization of PD into stages articulated by formative events or level of training.

They then attempted to provide a more concrete definition: "Professional development is an ongoing process through which an individual derives a cohesive sense of professional identity by integrating the broad-based knowledge, skills, and attitudes within psychology with one's values and interests" (p.89). Over the years, the concept of GPD has been redefined and transformed to connect more closely to one's professional identity and competencies. Rose (2012) specifically refers to GPD as academic and transferable skills that can be applied to the workplace. Regarding graduate students in this study, GPD referred to learners' unique needs, current professional requirements, and future goals beyond their graduate programs. For the researcher then, defining GPD for this specific EFL context thus

became "an ongoing process of reflection on and improvement of one's skills, competencies, and experiences for self- and professional development."

To understand how students, professors, and industry experts perceived GPD, a survey was administered to 60 graduate and doctoral students and semi-structured interviews conducted with two professors and one industry expert. This enabled the researcher to gain a first-hand account of graduates' real-life professional needs and requirements. The 60 students participating in this study had signed up for an intensive graduate presentation course taught during the summer holidays. 42 students completed the survey fully and data were analyzed from these student responses. Partially completed surveys were discarded. Surveys were not anonymous so that the researcher could follow up with individual students after the presentation course. Students gave consent to use their responses in this study. The professors who participated in the interview taught in science faculties and the industry expert worked in a well-known, international Japanese technology company. Results of surveys and interviews are presented below.

Students' definition of GPD

In the survey, students were asked the open-ended question, "What does 'professionalism' mean to you?" Student comments were separated into six categories (Figure 1).
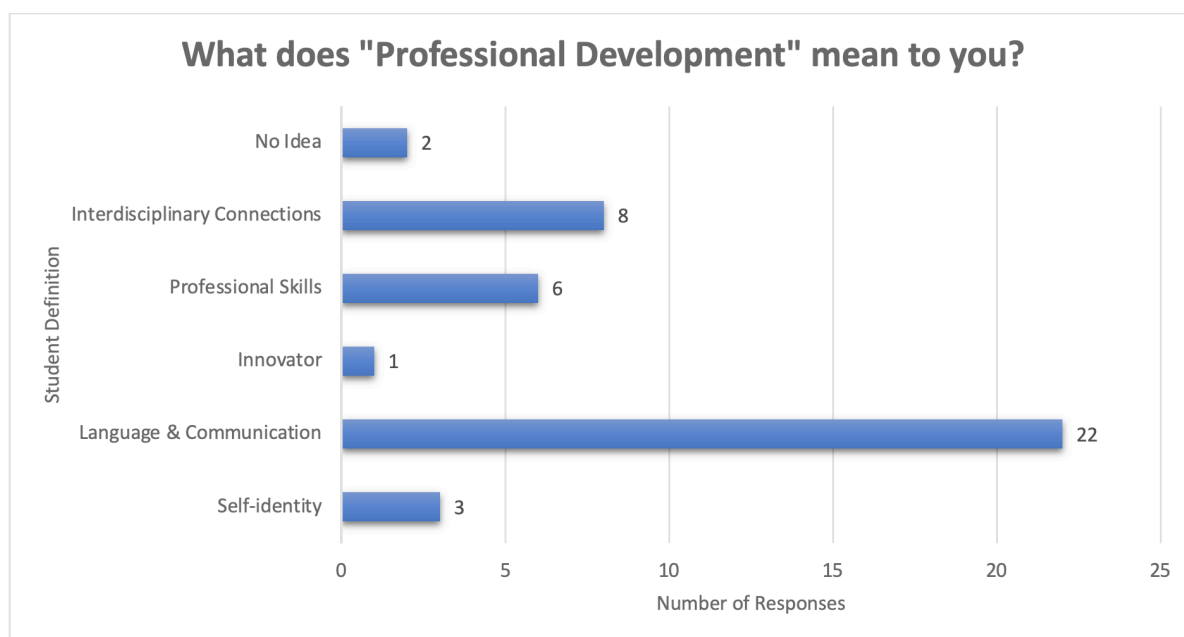
n = 42 participants

Figure 1: Response to What does "Professional Development" mean to you?

No idea: Of the 42 responses, only two students (5%) responded that they did not have a definition for GPD. These students had signed up for the presentation course to gain an understanding of academic presentation conventions to improve their conferencing skills. Attending and presenting at international conferences is typically a core part of all graduate programs in Japan, thus these students joined to learn more about how to function effectively in a conference setting.

Interdisciplinary: For eight students (19%), GPD referred to the ability to collaborate with researchers who were in different fields of study and in a variety of situations (Holaday et al.,

2007). One of the main constraints students faced at international conferences was the inability to engage with presenters and presentations that were outside of their research field (see Katz-Bassett et al., 2016).

Professional skills: Six students (14%) considered GPD as having professional skills. They defined these skills as having a mindset that would be helpful in the real world—industry and research (Dyess & Sherman, 2010), acquiring the right professional knowledge for their chosen career path, exerting leadership skills (Patterson et al., 2013), and understanding and practicing an ethical code of conduct especially in international settings.

Innovative Research: Only one student (2%) considered GPD as having the ability to create innovations for a sustainable society. As most of the students were from science-based research fields, finding innovative ways to move the field forward was a central part of research dissertation.

Language & Communication: 22 students (52%) defined GDP as the ability to convey thoughts about one's professional field (in English and their L1) both verbally and in writing. All participants were familiar with giving presentations within their laboratories as part of graduate coursework. During their graduate studies however, they would also be required to present their research to specific and general audiences at various conferences. This is also similar to graduate students in courses outside of Japan (Conn et.al., 2014). As second language learners, most students were most concerned about how to convey their message effectively in English.

Self-Identity: Three students (7%) related GPD to their professional identity (see Trede & McEwen, 2012). For these students, it meant having an enhanced sense of self-confidence in one's professional skills and a certain amount of self-discipline and responsibility to perform effectively in professional situations.

Professors' and industry expert's definition of GPD

Interviews with professors and an industry expert provided further insight and helped the researcher to concretely identify the specific knowledge, skills, and experience graduate students would require in order to become professionals in their field. Two points were regarded as most important: language competence and exposure to professionalism:

Language Competence in research settings: Professors felt that students required practical, communicative language to succeed in multicultural, multinational laboratories and conference events. One of the professors interviewed went as far as making it mandatory for students to communicate only in English while working in the labs. It was important for these students to be able to how to switch from informal to formal English at a moment's notice in order to understand which communication styles would be most effective in specific situations.

Excerpt 1: Interview with professor A

> *For graduate students it is important to express what is happening with data. So, they need to be able to listen to seniors actively…In our case, each group has meetings daily, sometimes three or four times to report their results, so they need to be able to communicate with collaborators. Many of our students are international so this*

makes the atmosphere more natural. We always have three or four international students, so all meetings have to be conducted in English. Each week they take turns to present such as interesting journal paper related to their work or review a topic from several journal papers. Students are forced to learn. This is tremendous practice all in English, so they are ready to present at conferences.

Professionalism in the workplace: The industry expert also regarded the ability to communicate effectively in the second language as a core professional skill; however, he further emphasized the importance of "soft skills" (i.e., connected to one's trait and interpersonal skills) especially flexibility and maintaining professionalism in a fast-paced environment.

Excerpt 2: Interview with industry expert

Employees must effectively convey meaning at a moment's notice even if language skill is not proficient (answering an important phone call, being pulled into a sudden meeting, responding to an urgent email). Learn how to be understood. Students need to intern more and sit in on meetings for exposure. Lecture-style teaching at universities is doing students a disservice.

Responses from participants were then compared with the researcher's initial definition of GPD to create a more accurate description of GPD for the EFL Japanese graduate student related more closely to their life beyond graduate school.

*An ongoing process of reflection on and improvement of one's skills, competencies, and experiences for self- and professional development **to maintain relevance in today's modern, multicultural, and multidisciplinary workplace**.*

Research Aim 2: Students' readiness for GPD

The second research aim sought to identify students' current experiences with GPD and how prepared they felt to perform in a professional setting. Students were asked the following two questions in the survey:
- Do you feel you received sufficient training for graduate school?
- Has your graduate/doctoral program offered professional development training for your professional life?

Results for the first question (Figure 2) indicated that only 14% of the participants (6 students) felt that their undergraduate courses prepared them for graduate school. On the other hand, an overwhelming 86% (38 students) said they lacked confidence when they entered graduate school. Receiving training for graduate school is a necessary step for GPD as many of the skills required to be successful in graduate programs are similar to those needed for professional development—strong work ethics, ability to motivate oneself to complete tasks, discipline, time management, and having strong communication skills to participate effectively in meetings, seminars, and discussions with peers and supervisors.
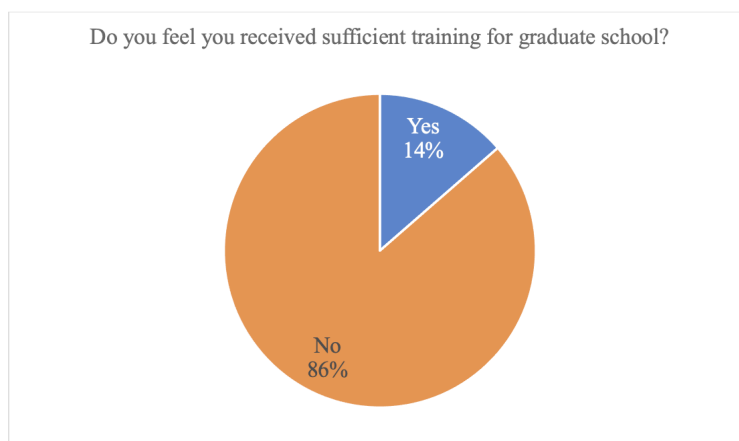
Figure 2: Training for graduate school

Excerpt 3 below illustrates a common theme among student responses.

Excerpt 3:

> *For the research part, I think yes. I had theoretical courses and plenty of experimental courses in a systematic way… For the language and presentation part, I would say no. I only had the English class for one year out of five years undergraduate study. I just learned English in a general way which is not enough for graduate school. And there were some classes request to do a presentation, but teachers would not tell you how to do it or what is a good presentation looks like, they only sent the requests. What I could do was observing how other people present, so for sure I was not well prepared to give presentation especially in international contexts.*

Results for the second question (Figure 3) was markedly different. Of the 42 students who responded, 38% (16 students) felt that their graduate program was helping them to become professionals. However, there were still 62% (26 students) who felt that they required more training. As GPD is a core concept in graduate courses at the university, this result was somewhat disappointing.

Figure 3: Training for professional life

The following excerpts are examples of student responses which demonstrate satisfaction with their graduate program (Excerpt 4) and those that felt their course could be improved (Excerpt 5).

Excerpt 4:

> *I do not believe that we are given career assistance throughout graduate school. There have not been many professional research conducting opportunities and there are not many international networking events conducted here.*

Excerpt 5:

> *Yes, I think so. Since I started the master's course, I think I improved a lot…. I have my own project now, so I learned how to manage a research project in a professional way from my supervisor and seniors. And our lab is an international lab, most of the lab members are from abroad, it helped me a lot at giving presentations and networking during the weekly seminar. Also, I took a class called Medical English last year, I learned many useful presentation skills from this class.*

What the researcher gleaned from these results was the necessity to identify which laboratories offered support and those that students felt unsatisfied with. It was felt that this could encourage knowledge sharing practices across departments and improve GPD in the wider community of practice.

Survey results thus helped the researcher to get a first-hand account of learner experiences and begin to create a taxonomy of core competencies and recommendations for GPD training programs. These will be discussed in the conclusion. The next section looks at research gaps which emerged through data analysis.

Research Aim 3: GPD knowledge gap

The final research aim sought to identify gaps between curricula (undergraduate and graduate) and current GPD practices, requirements, and expectations for academia and industry-related positions. It seemed clear to the researcher that closing the knowledge gap (Guskey, 2009) would help to create a solid starting point on which to build a framework for GPD. The two main categories that emerged from data analysis were language proficiency for research contexts and professional skills for the workplace.

Skills for Research Contexts

The language skills both professors and students ranked in order of importance were:
1. Listening
2. Speaking
3. Reading
4. Writing

Active listening was weighted the highest as students needed to learn about research procedures and various up-to-date research topics within the research field from seniors and peers during research presentations. The second was having sufficient communication skills in both formal and informal situations so that students could become natural interlocutors.

Both students and professors regarded "functional" language skills as most important during presentations to effectively articulate research findings as well as confidently switch to networking when required. Reading and writing, although essential for GPD, were considered less important as students could use a translator as a support for self-directed learning.

Having strong research skills was essential to convey meaning (e.g., content knowledge, data collection and analysis) in a comprehensible way. Without deep knowledge of their research content, it did not matter how proficient students were in their language skills. Again, both students and professors agreed on this component of GPD which reinforced the importance of listening and speaking proficiency for research contexts.

Gap between curricula and research context

The gap with the undergraduate curriculum and GDP practices in some laboratories was quite evident from the points raised above. First of all, freshman English courses focused mostly on acquiring academic vocabulary, reading, and producing essays, with little focus on speaking and listening. The lack of consistent oral communication activities made it challenging for graduates to engage in conversation with international students while working in labs or to contribute effectively to presentations, either as presenter or audience member. Thus, although students' research skills and content knowledge were strong, they could not perform effectively at international conferences, nor did they have the confidence to persist in trying to get their message across.

Secondly, learners who are members of labs with international students experience informal communication daily during research tasks, lunch, and lab outings. For these labs, graduates are able to improve their communication skills naturally. However, since very few labs in Japan are multilingual, this creates a challenging situation for students trying to network or collaborate with international peers.

Skills for Industry Settings

The two main skills that emerged from the interviews as essential to perform effectively in the workplace were "people" skills and professionalism. People skills referred to verbal and nonverbal interaction and communication with people from different research fields and nationalities. Interaction skills which many students found challenging were for example, initiating or interrupting a conversation, reacting quickly and appropriately to utterances, making small talk about "safe" topics, predicting behaviors, or knowing simple rules of social etiquette. Making a memorable and positive first impression is one of the best ways to form a collaborative partnership and expand one's research network, thus it is necessary to acquire certain social skills through practice.

Professionalism was a second common theme that surfaced throughout the interviews and in the presentation course. Although there were some mature students in the graduate program (over 30 years of age), most of the students were in their early 20s and thus had very little life experience. Three issues arose as challenges for students. First, as stated above, most young researchers were largely unfamiliar with interacting with others outside their labs and had thus not developed the necessary mannerisms suited for attending or presenting at an international research conference. There was a bit of social anxiety which made it difficult for students to recover from a social faux pas. The second issue was time management. There

were some students who had to be reminded frequently to find the time to prepare for presentations before standing in front of an audience. Students were not allowed to read from a script during the presentation course, so they needed a certain amount of practice in order to look natural and feel confident about giving a presentation in their L2. A third issue was the inability to have a critical mind to problem solve and make sound decisions on their own. This was particularly evident during the presentation course when the instructor did not give explicit instructions. In the surveys, students themselves admitted that they had rarely experienced professional environments and felt that it was important to know how to be quick to learn new things in the workplace to establish a routine quickly and have a critical mind so they could work independently. Two international students mentioned the necessity of understanding teamwork and collaboration in Japanese laboratories which points to the importance of also understanding professionalism in specific cultural contexts.

Gap between laboratory work and industry settings

Long-term internships are uncommon for graduate students as they are usually busy in their laboratories conducting experiments, and internships are also typically done in the learners' L1. Thus, they rarely encounter English in real-life workplace situations. To experience professional skills in a real-life environment, it would be beneficial for graduate programs to collaborate with potential partners in specific industries on a systematic program, so that students can get an idea of the type of work they will experience after graduation. This would further help students to develop a professional mindset as they would need to show an appropriate level of social decorum and have flexibility to tackle various jobs. With regard to socializing, it would be prudent for laboratories to make it mandatory for presentations and discussions about research to be done in the L2 so that students will learn how to react spontaneously to informal and formal interaction.

Conclusion: Further research and recommendations

This research has thus far highlighted the need for GPD in Japanese universities in order to prepare students for life beyond their labs. The researcher provided a concrete definition for this particular context and presented first-hand accounts from students, professors, and an industry expert describing professional development components that are essential to student success. The researcher finally examined gaps between current curricula and GPD practices. The research now concludes with the next step in the research and specific recommendations of core academic and transferable 'real-life' skills and knowledge GPD training programs can implement so that students feel fully prepared for the experiences they will face during graduate studies and beyond.

Regarding the three aims in this study, further research is required to provide a more accurate picture of GPD in the Japanese university context. Although creating a working definition of GPD is important, the researcher will need to continue building a list of core guiding principles and a taxonomy of essential components related to language proficiency and professional skills. A second step will be to gather empirical evidence from a wider population of graduate students, professors, and industry experts regarding what constitutes GPD. One of the reasons for the research gaps is that there is a paucity of research on GPD in the Japanese EFL context. This results in a lack of knowledge sharing, inconsistent guiding principles, and few opportunities for learners to participate in GPD meetings, workshops, and long-term internships. To narrow this gap, more students and professors from other faculties will have to be interviewed to cross check if skills and knowledge for professional

development are the same or different. In addition, the researcher would also have to interview more industry experts to understand commonalities within various industries. Using the evidence collected, it would be possible to present a detailed report to heads of graduate departments to develop and streamline a GPD process.

Based on first-hand accounts of what students, professors and the industry expert felt were required for successful GPD, the following recommended list of content has been developed. The researcher feels that it would be beneficial as guideline when discussing content to be used in workshops or credit-bearing courses:

1. Defining "Professionalism"
2. The importance of building strong communities of practice and networking
3. Roles and responsibilities in academia and industry settings
4. Research ethics and code of conduct
5. Awareness and self-evaluation of "soft skills" vs. technical skills
6. Giving effective presentations (oral presentations and posters, face-to-face and online)
7. Finding external funding and writing up research proposals
8. Finding conferences and sending in a conference proposal
9. Designing CVs and practicing interviewing skills
10. Improving discussion skills: The impact of, current trends in, and future of the research field
11. Converting a dissertation or presentation into a scientific article
12. Understanding the aims and scopes of journals and writing critically for the specific journal
13. Giving advice to young researchers about how to "survive" graduate school and prepare for professionalism.
14. The role of reflection (in decision-making and critical thinking)
15. Practical activities for GPD (e.g., networking events, internship, mock conferences)

This study is in its first year of a 3-year longitudinal research project. As such there are many unanswered questions and further research will have to be conducted with a wider population to make more accurate claims. One point that administrators and department heads in Japanese universities can agree upon however, is that there is a lack of systematic GPD opportunities which is doing a disservice to its students. If a GPD program can be designed with strong guiding principles and clear components, and shared across faculties, then it would enable students to develop the necessary skills to succeed academically and later on in their careers.

Acknowledgments

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Post Pandemic Resilience: A Transition From Learning at Home to Hybrid Learning at School in Malaysia–A Case of SMK Dato Seri Maharajalela, Perak, Malaysia

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Abstract

Pandemic COVID-19 gave an impact to the whole world including education and training sector focusing in Technical and Vocational Education and Training (TVET) at Malaysia. With the current challenges we must face volatile and uncertainty situation across the globe. Malaysia Education system especially TVET at every level from secondary to higher TVET sector adjusted from traditional system to the latest industry 4.0 technology to make teaching, training and delivery of instruction happen effective to produce highly skilled worker for the country development. Teaching and Learning (TnL) is divided into 2 namely Learning and Facilitation (PdPc) and also implementation of Teaching and Learning at Home (PdPR). Therefore, this study was conducted to identify the level of student readiness through aspects of interest in the field of Agriculture, the level of student interest in the practical/theory of Agriculture subjects as well as student attitudes during the learning session. In order to achieve the objectives of the study, the method used is quantitative, which is by distributing questionnaires to respondents through a google form that consists of part A, which is demographics, part B, the level of readiness, part C, the interest aspect, and part D, the attitude aspect. Findings shown that 3 main stakeholders in vocational college teacher/instructor, students/trainees, and administrative having some challenges to coupe back with new normal of teaching and learning process. They need to move on and adapt with the current challenges specially to maintain high quality of delivery and instruction in order to produce human capital for Malaysia.

Keywords: Learning and Facilitation (TnL), Teaching Implementation and Home Learning (PdPR), TVET, Digital Gap

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1. Introduction

Learning is a process of knowledge acceptance, mastery and the formation of a student's attitude assisted by the teacher (Ropisa & Rahimah, 2018). The Malaysian Ministry of Education (KPM) has introduced a teaching and learning method (PdP) that can improve the achievement and knowledge of each student. Facing the challenges of the current era, teachers need to ensure that they undergo continuous learning to master various fields of knowledge and be able to absorb all current changes so that they appear flexible, relevant and have high teaching effectiveness (Shamilati et al., 2017). The Malaysian Education Development Plan (2013-2025) stipulates that every student has access to education to achieve their potential to face future life. Therefore, students are entitled to the opportunity to attend education, even if they cannot attend school (Ministry of Education Malaysia).

Teaching and Learning at Home (PdPR) was created to help teachers to implement teaching as an alternative to learning the new norm. This is due to the presence of a new virus that has been discovered in Wuhan, China and is known as Novel Coronavirus (2019-nCov) (COVID-19). Yunus and Rezki (2020) argue that year 2020 is a year that worries the whole country. This is because of the outbreak of the Corona virus that started in the Chinese city of Wuhan and has spread all over the world, including Malaysia. It is one of the viruses that will infect the human respiratory tract and refers to a new sepsis virus that has never been discovered by humans. However, it can spread among humans and animals. However, this virus infection is almost the same as the flu but the complications due to the infection are worse such as MERS-CoV and SARS-CoV, especially for people with weak immune systems. The COVID-19 pandemic has indeed brought a great influence to the socioeconomic as well as the education field around the world (Lekhraj Rampal, 2020; Rohayati Junaidi et al. 2020).

2. Literature Review

2.1 The Movement Control

The Movement Control Order (MCO) has given a very large impact on the country in various sectors including the education sector. The declaration was made by the Prime Minister of Malaysia, Tan Sri Muhyiddin Yassin on 18 March 2020. This order applies throughout Malaysia and will be in effect from 18 March 2020 until 31 December 2020. There are six instructions contained in the MCO, namely the prohibition of movement and mass gatherings including religious, sports, social and cultural activities. Then a total ban on all Malaysian travel abroad. Restrictions on the entry of all tourists and foreign visitors into the country. Closure of all nurseries, government and private schools as well as primary and higher secondary education institutions. On 18 March 2020, the prime minister announced the Movement Control Order (MCO) as an effort to break the chain of epidemic transmission COVID-19.

All educational institutions are closed and the revolution of the education system can be seen when students use virtual technology to learn during the MCO period in this country. Online learning is an alternative to the survival of educational activities during the COVID-19 pandemic crisis. According to Nor Aziah and Mohd Taufik (2016), online learning is an electronic knowledge delivery system that is usually better known as a learning management system, a virtual learning system, and a content management system supported by learning content and infrastructure facilities. In addition, Rosfazliszah and Nurul (2020) also think that the learning process through online discussion is easier and more effective. However,

Munirah (2021) states that face-to-face learning is more easily accepted by students compared to online learning and will be well received if equipment facilities such as personal computers and unlimited internet flow are available at home.

2.2 Teaching and Facilitation (PdPc) vs Teaching and Learning at Home (PdPR)

Teaching and Facilitation (PdPc) has been considered important because it is a process in completing the dynamic needs of students. PdPc in this 21st century, every educator should master more knowledge and 21st century skills among students. The teachers should have a teaching strategy through selection and planning in order to determine the approach, method, technique and also activities in a lesson to achieve the teaching objective (Ismail Suardi, 2014). The implementation of PdPc online has been practiced for a long time in developed countries because they believe that it is capable of providing various benefits and benefits to students. The 21st century PdPc requires teachers to face the challenges of the Malaysian education curriculum. Teaching approaches, strategies, methods and techniques should be carried out with KBAT characteristics and student-centered (Raja Abdullah Raja Ismail & Daud Ismail, 2018). To produce students who are balanced, resilient, curious, principled, have confidence and communicate effectively, students should be provided with curriculum skills and competencies. According to Raja Abdullah Raja Ismail and Daud Ismail (2018), teachers need to be exposed to the implementation of the PdPc of the 21st century. Teachers who have a high commitment to implement PAK21's desire to produce students for the future human capital market. Rapid changes in the education system in the 21st century era need to be dealt with systematically because education is the main field as a factor that leads to the progress of the country. This is to face the challenges of the 21st century, which is to produce first-class mental human capital (KPM, 2006) and to produce high-quality human capital as in the idea of the Malaysian Education and Development Plan (PPPM) 2013-2025 (MOE, 2012).

The National University of Malaysia (2020) study shown 80% of teachers face the issue of Teaching and Learning @ "Home" (PdPR) tools and student participation the issue of learning dropout and 'learning burnout'. It generate the 'Lost generation' to the cohort of students who dropped out of education, causing their level of educational achievement to be lower. Ministry of Education (KPM) statistics released on 11 Oct 2020, the dropout rate of primary school students increased to 0.13 percent in the year in question compared to 0.12 percent in 2019, while the dropout rate of secondary school students increased from 1.14 percent to 1.26 percent for the same period. More than half or 51.2 percent of the 52,413 school students in this country, admitted to being stressed by the Teaching and Learning method at Home (PdPR) throughout the duration of the COVID-19 pandemic. 48.9 percent of students cited interaction with teachers as a source of stress, while 55 percent of respondents felt stressed due to limited interaction with friends. 53.4 percent of students are stressed due to lack of guidance in learning sessions while 34.1 percent stated that the results of learning at home are not the same as those obtained at school 52,413 respondents involved students, the study also included 13,156 school administrators, 39,967 teachers and 59,624 parents or guardians.

2.3 Student's Intention

The development of quality and world-class education is the main agenda Ministry of Education Malaysia (KPM) and Ministry of Higher Education (KPT). Based on this important agenda, teachers are a group that is directly involved in implementing efforts and

teaching approaches to improve the quality of education and ensure that the maximum learning results are obtained by students at school. Therefore, teachers need to be more creative and innovative to ensure that the delivery system becomes more effective, interesting, fun and can stimulate students' interest in learning. The teacher factor is significant in influencing students' interest and commitment to learning and has the potential to change students' attitudes and status towards a curriculum (Salleh 2003; Hattie, 2003). Public concern about the quality of teacher teaching as presented in the statement of the School Inspectorate (Jemaah Nazir Sekolah, 2001) should be given serious attention by all educators because this matter indirectly reflects the role of teachers in achieving national education goals.

This phenomenon can also be considered as a manifestation of parents' and the public's lack of trust in the quality and performance of education provided by public schools (Hamzah, 2001). Teachers play an important role in implementing additional learning during the pandemic era. Students who have been locked in the house for a long time and carry out online learning without face-to-face between the teacher and the student cause the student to easily feel bored and clumsy after the initial face-to-face learning. Student interest is also driven by interest in a subject, especially in the subject of agriculture. In Kampung Gajah itself, it can be said that the majority of the residents there are directly involved in agriculture and are followed by their children. Teachers need to play an important role in fostering the student's interest in agriculture to study at school.

3. Methodology

Methodology is to discuss the methods used to obtain information as well as the data necessary to achieve the objectives of the study. For this study we used the quantitative method by conducting a questionnaire to achieve the objectives of this study. The objective of this study is the first to identify the students' readiness level through the aspect of interest in agriculture. The second is to identify the level of interest of the students in the practice/theory of the subjects of Agriculture and the last objective is to identify the attitude of the students during the learning session. for agricultural subjects. The study used a questionnaire that used a population guided by the Krejchie & Morgan (1970). While for the selection the answer has used the Likert scale (1-5) which is 1= Strongly Disagree (ATS), 2 = Disagree (TS), 3 = Neutral (S), 4 = Agree (SS) and the latter is 5 = Strongl Agree (ASS). This data will also be analyzed using the *Statistical Package for Social Science SPSS* 25.0 program.

3.1 Population and Sample

In this study, the reviewer will conduct a study of the target population which consists of form 4 and form 5 students of SMK Dato Seri Maharajalela, Perak. The population of this study was 31 respondents using the Krejcie & Morgan table 1970 so the sample was only 28 respondents.

N	S	N	S	N	S
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note.—N is population size.   S is sample size.

Source: Krejcie & Morgan, 1970

Figure 1 Krejcie & Morgan Table 1970

3.2 Study Instruments

In this study, it involved only one study instrument, which is one set of online questionnaires that use the *google form* app to get answers from respondent. This online questionnaire is in the form of closed and open questions. The answer option is provided using the Likert scale (1–5) as in fig. 3.2. Part A is a demographic with respect to the respondent's background information. While in fig. 3.3 shows the questions in part B of the questionnaire given to the respondent. Figure 3.4 shows the questions on part C of the questionnaire and diagram 3.5 indicate the question on part D of the questionnaire.

Level	Scale
1	Strongly Disagree (ATS)
2	Disagree (TS)
3	Neutral
4	Agree (SS)
5	Strongly Agree (SS)

Table 1: Likert Scale

	PART B: THE LEVEL OF READINESS OF STUDENTS THROUGH THE ASPECT OF INTEREST IN AGRICULTURE
	QUESTIONS
B1	I like to see green plants.
B2	I love the farm animals that are around my house.
B3	I am not clumsy or amused to touch animals.
B4	I love eating vegetables and fruits.
B5	If I visit, I prefer to choose places such as vegetable farms or fruit plantations.
B6	From an early age, I used to play with the ground outside the house.
B7	My parents raised animals.
B8	My parents farmed in the house.
B9	My family has a livestock farm or crop farm
B10	There are members of my family who have a background in agriculture.

Table 2: The Level of Readiness of Students Through The Aspect of Interest In Agriculture

	PART C: LEVEL OF STUDENTS ' INTEREST IN THE PRACTICALITIES/THEORY OF AGRICULTURAL SUBJECTS
	QUESTIONS
C1	I like to practice Agriculture because it can improve my skills.
C2	I tend to practice agriculture rather than theory in the classroom.
C3	I like to practice in the Agricultural Lab.
C4	I love hearing teachers tell stories about agriculture.
C5	I like to do farming
C6	I like to practice Agriculture due to the influence of friends
C7	I like to practice Agriculture due to the teaching of teachers.
C8	I was happy when my crops in the school garden produced a yield.
C9	I will try to get information on Agriculture through blogs and websites.
C10	I like to apply the KBAT element in the Agriculture Subject.

Table 3: Level of Students ' Interest In The Practicalities/Theory of Agricultural Subjects

PART D: ATTITUDE OF STUDENTS DURING THE LEARNING SESSION	
	QUESTIONS
D1	I am very passionate about Agriculture subjects if I study in groups
D2	Group learning encouraged me to think in Agriculture subjects.
D3	Group learning made me more diligent and passionate.
D4	I am less active during solitary activities
D5	The understanding in the concept and theme of Agriculture makes me more confident
D6	I am active in issuing ideas and opinions when answering questions
D7	Group learning can create tolerance among yourself
D8	The group assignment made it easier for me to understand the agriculture subjects well.
D9	I feel that Agriculture is the easiest subject to learn when studying with friends.
D10	I was eager to do schoolwork for the subject of Agriculture.

Table 4: Attitude of Students During The Learning Session

3.3 Data Analysis Methods

All data obtained from the Google forms questionnaire will entered into Microsoft excel and will be analyzed using the Statistical Package for Social Science SPSS 25.0 program. The analysis used is a descriptive analysis that has included percentages, mean and even standard deviations. According to Muhson, A. (2006) states that descriptive analysis is a statistic to be used to analyze data by describing the data that has been collected to conclude against studies.

4. Findings

In descriptive data analysis by finding the mean, standard deviation and frequency for each research question. While the discussion is about the convergence of the findings that have been obtained, then the discussion will be done according to the previously desired objectives.

4.1 Part B: Level of Pupils' Readiness Through Aspects of Interest in the Field of Agriculture

The highest mean is on livestock around the house, while the lowest is the mean reading (M=3.93) and standard deviation (SP=0.766). So, it can be seen that the respondent is very interested in the animals around him but to touch the respondent is a bit clumsy or amused.

4.2 Part C: Level of Student Interest in Practical/Theory of Agricultural Subjects

The highest mean reading in this section is that "I will try to get information related to Agriculture through Blogs and Website" While the lowest is the mean reading (M=4.00) and standard deviation (SP=0.720). So, respondents try to get information related to Agriculture

through blogs and websites and respondents are also more inclined towards practical than theory when hybrid learning occurs.

4.3 Part D: Student Attitude During Ongoing Learning Session

The highest mean reading is (M=4.46) with a standard deviation (SP=0.508). While the mean amount is low (M=4.04) with a standard deviation (SP=0.744). This is because, the respondents indicated that group learning makes them more diligent and enthusiastic, but that is not an obstacle for them to improve their thinking in the lesson.

The results that have been shown in part B regarding the level of student readiness through the aspect of interest in the field of Agriculture with a mean value of 4.14 and a standard deviation of 0.50. Then, part C about students' interest in practical and theoretical Agriculture subjects with a mean reading of 4.0 and a standard deviation of 0.540. Lastly, is part C about students' attitudes towards the subject of Agriculture, the mean reading is 4.21 while the standard deviation is 0.53. Because of this, it can be seen that students in the 4th and 5th grade of SMK Dato Seri Maharaja Lela have a good attitude towards the agriculture subject learning session because they show a high mean value.

5. Discussions

Findings from this study indicated that the student still having highest level of perceptions towards learning agriculture subject after pandemic. Hybrid learning is an alternative to the survival of educational activities post COVID-19 pandemic crisis before we can take off to the full face to face interaction. As Nor Aziah and Mohd Taufik (2016) have mentioned, online learning is an electronic knowledge delivery system that is usually better known as a learning management system, a virtual learning system, and a content management system supported by learning content and infrastructure facilities but when reflect back to the before 2019 technology is not optimized in our classroom interaction. Although, Rosfazliszah and Nurul (2020) think that the learning process through online discussion is easier and more effective but our teacher needs some stimulus to move toward using technology in classroom.

The implementation of PdPR online has been practiced for a long time in developed countries because they believe that it is capable of providing various benefits and benefits to students. Findings shown that the students still have highest level of interest in learning agriculture. The 21st century PdPc requires teachers to face the challenges of the Malaysian education curriculum. Teaching approaches, strategies, methods and techniques should be carried out with KBAT characteristics and student-centered as Raja Abdullah Raja Ismail & Daud Ismail, (2018) said in there study. Malaysian education system need to produce students who are balanced, resilient, curious, principled, have confidence and communicate effectively, students should be provided with curriculum skills and competencies by 2025 to achieved high developed nation by 2030 shared prosperity vision.

As Siva and Vimala (2021) said that referring to the aspect of reporting in teaching and learning at home, teachers need to provide training, assignments, carry out assessments and evaluations. Students are responsible for completing and submitting the exercises and assignments that have been given. Thus, various methods or ways of reporting can be implemented in teaching and learning at home.

6. Conclusions

It is hoped that in the future, the students of the Agricultural stream will be more interested in the subject of Agriculture, whether in daily High School or Vocational College and so on. Not only that, it is also hoped that the next study can be done by involving students in the field of Agriculture from each district or state. Finally, both education and teachers are recommended to take into account also being involved in order to get the results of the study obtained in more depth.

The three main stakeholders in vocational college teacher/instructor, students/trainees, and administrative having some challenges to coupe back with new normal of teaching and learning process. They need to move on and adapt with the current challenges specially to maintain high quality of delivery and instruction in order to produce human capital for Malaysia.

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Current Development of ESP Teaching Policies in Mongolia

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Abstract

In recent years, English for Specific Purposes (ESP) has been teaching in many countries of Asia including Mongolia. In this paper, we will first explain the recent ESP teaching policy, ESP development, existing problems in China, Taiwan, Japan and Mongolia. These include the curriculum and materials development in ESP. In Mongolia some steps towards running ESP training at tertiary level commenced, where government policies designed to internationalize all levels of education. ESP training will continue to improve student's competencies across the four language skills plus competency in translation in order to meet the needs of their future workplace and society. In this paper we tried to study ESP developments in Asian countries, to make comparison with them and to improve ESP teaching policy in Mongolia.

Keywords: Specific Professional Needs, Business English, College and Universities, Survey

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I. Introduction

Since the 1960s, ESP has developed into one of the most influential approaches to English teaching in Asia. Recently, ESP has been realizing greater interest due to the effects of globalization within industry and academia, particularly in Asia. In industrial environment university graduates increasingly need strong English skills to succeed in their jobs. Similarly, in the universities students need improved English skills to not only study their specialized discipline, but also to collaborate within international research teams and find jobs after the university. In this paper, I will describe the recent situation of ESP teaching in Asia and in some public universities of Mongolia.

II. Teaching ESP in Asian Countries

The most common classification of Englishes, especially in the language teaching world, has been to distinguish between English as a native language (ENL), English as a second language (ESL) and English as a foreign language (EFL). Kachru (1992) however, put forward another classification outlining the roles of English in the world as three concentric circles: the inner circle, Outer circle and expanding circle. The Inner Circle refers to countries where English is used as a mother-tongue language for example, USA, UK, and Ireland. The outer Circle refers to countries where English is used as a second language for example, Singapore and India. The expanding circle refers to countries where English is used as a foreign language or an additional language, for example Thailand and China.

Figure 1: The classification of Englishes
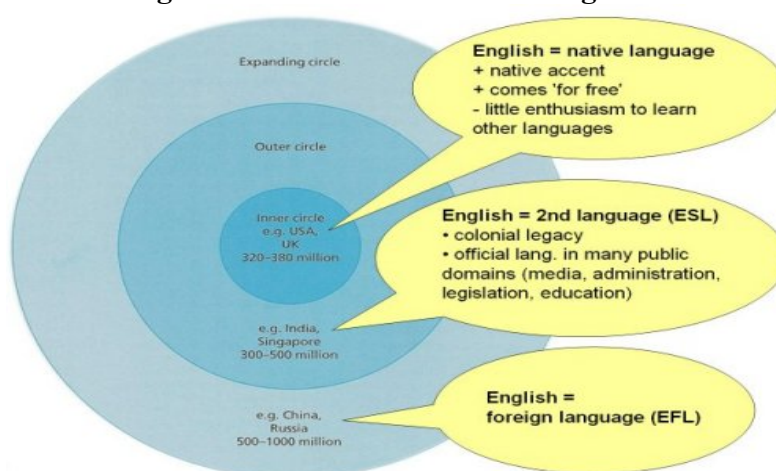
When we study language policy and ESP teaching policy, we have chosen Asian countries which included in expanding circle. For example, China, Taiwan, Japan, Spain and Mongolia. The main aim of this research is to study ESP teaching policy in Asian countries, take example of ESP teaching and curriculum developing method, make comparison with Mongolia's ESP teaching policy.

China- With the development of China's economy and the enhancement of the country's internationalization, ESP has developed to some extent. To meet the needs of the market-oriented economy, various English training courses are offered, for example, foreign trade English, tourism English, English secretary, international finance and so on. About two decades ago, universities and colleges began to offer English courses concerning students' specific professional needs.

However, there is not yet a sound ESP system which is suited to the specific situation of China's higher education. In College English Syllabus, it has been stated that the ESP course should be a compulsory course; in the first two years of the undergraduate study, students are offered the course of Basic English; ESP should be set from the fifth to seventh semesters with no less than 100 hours altogether and two periods each week is required. If time or resources permit, it is better to offer EAP reading, ESP translation or ESP writing courses on the eighth semester. According to the survey conducted by the Foreign Language Department, Henan University, 58%of institutions of higher learning questioned failed to set up the ESP course as regular course due to lack of finance, equipment and teacher resources. So we can see that ESP develops very unevenly in China (Theory and Practice in Language Studies, Vol.1, No.4, pp.379-383, April).

At present, business English in China is highly recognized in the society as one of the most popular disciplines. Statistics shows that the number of universities that have opened Business English major courses exceeds 800, and the schooling levels, majors and degrees are more diversified. For example, in Guangdong University of Foreign Studies, there are already five undergraduate programs and four postgraduate programs. Include the status of disciplinary development, course design, teaching approach, teaching staff development, and student evaluation system, which are seen as follows:

> In China today, Business English evolving from ESP has developed into a formalized discipline the concept of register analyses in recent years, which forms a brand-new innovative way to the development of ESP different from other countries (See Table1). (Theory and Practice in Language Studies, Vol.1, No.4, pp.379-383, April)

III. Teaching ESP in Mongolia

Research was conducted from 2012-2015 and 5 public universities, 909 bachelor students, 104 master students and over 50 ESP teachers included in our survey. From the public universities we will focus on *MNUE (Mongolian National University of Education),* where we teach.

Table 1: Research on ESP curriculum at MNUE

Subjects	Number of curriculum	Level of language	Year
School of Humanity: (history, Philosophy, Culture,Tourism)	4	Intermediate	2012-2013
Information technology, Maths	2	Intermediate	2013
Art and design	1	Intermediate	2013
Literature	1	Intermediate	2015
Journalism	1	Intermediate	2015
Physics	1	Intermediate	2014
Physical culture	1	Intermediate	2012
EAP	2	Upper intermediate	2014
Total	**13**		

Table 2: Difficulties for the English teachers of MNUE

Low degree of General English knowledge	72%
Lack of ESP standard and curriculum from the government	60%
High amount of students in a class	52%
High percent of teaching hour	24%
To improve ESP books, textbooks and materials	20%

Table 3: Why ESP teaching is necessary for students

To gain necessary information and put into practice	24%
To gain education to meet worldwide standard	16%
To get a job	6%
To work in international organization	1%
To improve knowledge	1%

ESP teacher's degree of education and employment years

Most of English teachers 75.8% at MNUE still studying at doctoral courses. Reason of this is lack of experienced supervisor and they have much of teaching hours than conducting any survey. 17.2% of the teacher's have master degree and 2% of them are doctor Ph.D. or vise professor. 65.5% of ESP teachers employed over 16 years, which means experienced teachers; 24.2% of them employed 11-15 years, 10.3% employed 6-10 years.

Table 4: Research on books and handbooks of ESP at MNUE

Name of the books	Level of language			Number of handbooks
	Pre-intermediate	Intermediate	Upper-intermediate	
English for Social sciences and Humanities	2	2		4
English for Maths and IT	1	2		3
English for art and design	-	1		1
Foreign language	1	2		4
English for literature	-	1		1
English for natural sciences	-	1		1
English for physical sciences	-	1		2
EAP	-	2	2	2
Total	1	5	12	18

Table 5: Research on improvement of ESP training

No	Index	1	2	3	4	5
1	Curriculum content should meet social necessity	1	0	0	1	18
2	To process ESP	1	1	2	15	2
3	To improve ESP books and handbooks	4	10	5	1	1
4	To make ESP as a compulsory subject	9	4	7	1	21
5	To renovate ESP teaching method and to improve information communicative technology	8	4	4	2	3

In Mongolian job market, there is an increasing demand for talents who not only possess all the necessary expertise, but also a good command of English. Therefore, the need for training

compound talents has become increasingly prominent. For MNUE students, program named "Teacher with English abilities" has been implemented by the 70% of government scholarship to promote future teacher and develop the nation. This program atMNUE usually studying procedure as follows: the freshmen or sophomore, who has intermediate degree of English are entitled to applying for admission to above mentioned program with duration of two years. Students take advantage of winter holidays to pursue the above program. There are four compulsory courses in each semester within two years, with practical courses completed in the winter and summer vacations.

Mongolian National University of Defense- For the books and textbooks ALC (American Language course) or military English books have been used for over 20 years not only for University of Defense students, but also for all military units and branches. These books are delivered to all collaborative countries from DLI (Language Institute of Defense) within IMET (International Military Education and Training) program of USA. These books have 5 levels each consists of 5 sections and Military English is taught 3 credit hours for a semester.

Table 6: Research on books and handbooks of ESP at MNUD

Levels of the books	Level of Language	Points to be meet
1-6	Elementary	0-25
7-12	Pre-intermediate	25-50
13-18	Intermediate	50-60
19-24	Upper-intermediate	60-70
25-34	Advanced	70-80

From the study we can conclude that for the University of Defense ESP teaching policy to meet an international standard has been implemented.

Mongolian National University of Medical Science- For the MNUMS from 2010 a little bit changed ESP teaching policy and in total 8 credit hours of English is taught for freshmen and sophomore. 4 credit hours are for General English in 5 levels from elementary to advanced level. Other 4 credit hours of ESP or English for medical science is taught for sophomore.

Table 7: Research on ESP curriculum of the Mongolian National University of Medical Science

Subjects	General English Form of the subject	Credit hours Hours	ESP Form of the subject	Cr hours	Form of the subject	Cr hours
Traditional medicine	Compulsory	2	Compulsory	2	Self –study	2
Bio medicine	Compulsory	2	Compulsory	2	Self –study	2
Social health	Compulsory	2	Compulsory	2	Self –study	2
Head& face medicine	Compulsory	2	Compulsory	2	Self –study	2
Treatment	Compulsory	2	Compulsory	2	Self –study	2
Nursery	Compulsory	2	Compulsory	2	Self –study	2

From the study we can conclude that at Mongolian National University of Medical Science ESP teaching policy is different from other universities in its form, 2 credit hours are compulsory and 2 credit hours of ESP are in the form self-study.

As a conclusion of this study, the essential role of English language education in Asian context can be summarized *as in the figure 2 by Chang B.M.*

Figure 2: (Chang, .B-M. 2011).The roles of English language education in Asian context.
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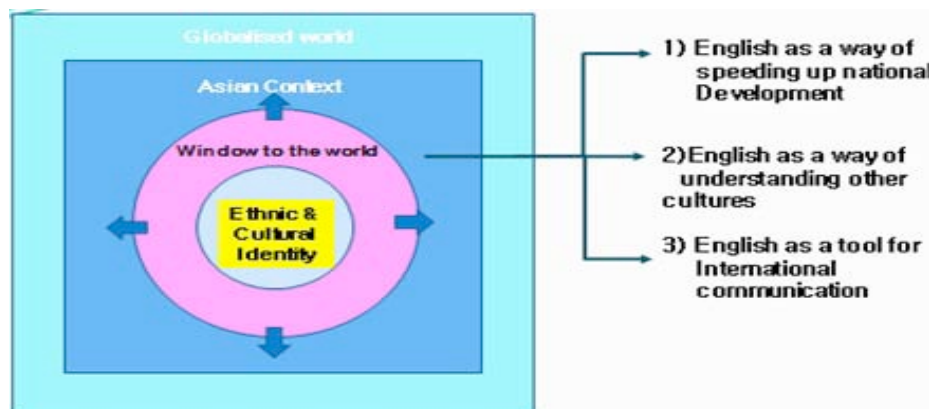
IV. Conclusions

In conclusion, the ESP course can be considered as the most practical and applicable subject for universities in Asia as the students want to become successful learners in their professional sphere while learning English. In China business English is highly recognized in society and there has been aroused a competition between subject teachers and ESP teachers, in Taiwan different kinds of ESP courses for sophomore, in Japan universities different ESP programs have been implemented. Mongolian ESP teachers work mastering both in linguistic and specialized areas, the ESP standard for Mongolian university academic programs, which theoretical and practical fundament has already been established firmly by the university ESP teachers initiation and efforts, should be formulated and brought into the wide implementation at the tertiary education.

The above mentioned research in charts are some part of my Ph.D. dissertation and in the result of our survey we have concluded that in Mongolia English language policy and ESP policy have been processed well for the documents but it's implementation is not sufficient. Therefore, ESP teachers in Mongolia must make effort to implement English language policy without waiting decision from the government.

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Effect of Use of Screen on Child's Development at Early Childhood Education Level

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Abstract

Screen time has become both a temptation and a popular pastime in recent years. Children are raised in an age of screen media and technology. The digital ecosystem is changing at a faster rate than studies into the impacts of screen media on young children's development, learning, and family life. This study focuses on the advantages and disadvantages of screen media in children, with an emphasis on developmental, cognitive, social, emotional, language and physical wellbeing. The study population was consisted of parents who have children of (0-8) years who met the sampling criteria and interview guide approach was used for data collection. The evidence-based recommendations for regulating and supporting children's early media experiences are: reducing, minimizing, mindfully engaging, and modeling healthy screen usage. Recommended solution is guided by understanding how young children learn and grow. In addition to the quantity of time spent on the screen, the quality of the content, parental participation, monitoring and the presence of interactive aspects are all factors that that influence the effect of screen use on early development.

Keywords: Screen Time, Cognitive Development, Social Development, Emotional Development, Language Development, Physical Development

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Introduction

Television and screen time media has become a common and popular past time for many families. Screen time is defined throughout the literature as media accessed through television, cell phones, DVDs, computers, and video games. Although television continues to be the most commonly used form of media, cell phones and tablets are quickly becoming a close second in overall usage (Barr & Lerner, 2014).

The chance to acquire or maintain developmental skills can be considerably reduced when children spend a large amount of time daily viewing screen media or viewing media that is considered unsuitable for their age. . There are 200 billion brain cells in a new infant's brain and there are 10,000 new connections created every second in infancy (Sousa, 2015). Just as extended time watching television or videos and engaging in electronic media can impact brain development. Cognitive and social skills can be impacted by repeated exposure to screen time (Sousa, 2015).

Due to continuously innovation in technology, many upgraded applications and tool are available to use for professional work, research, education, entertainment and socializing. While media use can be fun, and even educational, kids can get screen-time overload.

As per recommendation by American Academy of Pediatric in 1999, children under the age of 2 watch no television, and for children between the ages of 2 and 3, television viewing be limited (Barr, Lauricella, Zack, & Calvert, 2010). The AAP also recommended that parents limit the amount of time children spend watching television to 1 to 2 hours of quality programs per day (Barr et al., 2010). In one study, Courage and Howe (2010) found that only 32% of parents with children younger than age two complied with the AAP guidelines. Parents were encouraged to spend more quality time engaging in interactive activities with their children, such as talking, playing, singing, and reading to enhance and promote cognitive, language, and social, emotional and physical development.

The AAP did specify some early childhood activities that can promote young children's typical development in a general sense. More specifically, developmental milestones can be associated with all age spans between birth and adolescence. Children who have emotional, behavioral, learning or impulse control problems can be more easily influenced by TV violence. It is not necessary that the child's behavior shows the effects immediately.

The Research Interview

 The purpose of this study was:

- To determine whether screen usage negatively or positively impacts young children's development
- To understand the parents perception of positive and negative effects on child's cognitive development through using screens
- To study the effects of screen usage on the physical development of children, in the views of parents
- To understand the relation of screen exposure and its effect on language development of children, according to their parents
- To identify the effects of screens on child's social development and to understand the pros and cons of using screens and its effects on emotional development

We created the Interview guide and asked about the effect of screen time on child. We worked with families who have the children between the ages of birth through 8 and who are going through an initial special education evaluation. We have faced lot of negative and positive situation as majority of parents are unaware of consequence of cognitive, physical, social, emotional and language development in their child.

In addition, as a secondary importance of my research, it is necessary to provide educators and parents with current and accurate information regarding the relationship between the amount and the type of screen time and the effects on child development. Disseminating accurate information is especially critical since there seem to be multiple misunderstandings in the community-at-large as to whether screen time can be beneficial or detrimental for young children's overall development. Thus, the purpose of this study was to determine whether screen time negatively or positively impacts young children's development.

The primary purpose of this research was to explore the effects of electronic media on young children's development. A total of 15 samples were interviewed. All the questions from the question guide were responded by the participants, comprehensively. When analyzing the information got through responses from parents, regarding the benefits and detriment of technology usage for children, the views and perceptions of parents were recorded and separated to make groups of samples who considered the positive impact of screen time on child's development and the ones who considered it as negatively effecting on child's development.

Conclusion

The major findings arising from the research study are; there are both positive and negative impacts of screens usage on child's development. One of the specific finding was children acquire vocabulary and expressive language skills when appropriately engaged with electronic media at right age otherwise it is detrimental at the age of less than 2 years. It is more vexatious than the promising regarding physical and emotional development.

From this research, the researchers learned all of the impacts, both positive and negative, that screen media can have on child's development. The information that researchers learned after completing this research project has been completely eye opening.

It is found that all of the benefits of screen time heavily rely on the content and the context. The researcher believed that, we should inform parents that the content of television and video games has a critical impact on their child's learning and thus, should be age appropriate. The context in which the children engage in electronic media is also an essential factor to their well-being. Children had better developmental outcomes when they were engaged in technology in the company of their parents or caregiver.

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Appendix

Questions of interview

The Interview guide was selected as an instrument for data collection.

Q1. Tell me something about using the electronic devices using habit of your child?

Q2. Please share some positive effects of using screen on the mental development of your child?

Q3. Share negative effects of using electronic devices on the cognitive development of your child?

Q4. Please share your valuable thoughts about the effects of using digital screens on physical development of your child?

Q5. Please share your observations about the effects of use of gadgets/mobiles by your kid on their social relations with others?

Q6. Kindly share your ideas about the impact of mobile and TV screens on the development of language skills of your child?

Q7. In your views, how media is effecting the emotional development of your child?

Q8. Can you share some positive aspects of using screens on the language development of your child?

Q9. Please share the disadvantages of technology on the emotional development of your child?

Q10. Please share some advantages of using technology on the social bonding/behavior of your child?

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Measuring and Evaluating Educational Research Literacy in Higher Education: A Synthesis of Mechanisms and Discoveries

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Abstract

In the context of higher degree research, one of the greatest obstacles was equipping students with research literacy. It is, however, an underdeveloped research topic and consequently its associated practices are ill advised. Most would agree that to optimize policy decisions and public spending, it is necessary to evaluate costs in relation to the quality of outputs. Before designing any type of educational intervention to improve the educational research literacy, it is essential to have a measurement instrument that can track and evaluate educational research literacy levels along the progress. This systematic literature review seeks to identify current approaches that measure educational research literacy in higher education institutions and to summarize findings from pertinent evaluation studies. A search of two academic databases Scopus and Web of Science yielded 369 publications, which was screened down to 11 relevant journal articles. The framework analysis method was followed to reveal the mechanisms and outcomes of educational research literacy evaluation. In addition, it will reveal patterns, distributions, and trends of these publications based on their metadata. With a focus on the measurement and evaluation of educational research literacy, the results will also inform the development of instruments to assess educational research literacy in higher education settings. University-level research training providers may also benefit from this study for its results will empower their engaging in evidence-based practice.

Keywords: Research Literacy, Literature Review, Higher Education

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Introduction

Consuming and producing domain-specific scientific literature are essential and crucial activities in the lives of all researchers, whether they are established scholars or research students in training. These two activities represent the inputs and outputs of a researcher, which not only demonstrate their research literacy (RL) but also determine their career success. Continuous training to improve a researcher's RL is crucial. Yet, it is not uncommon to see a lack of systematic RL training for faculty members and research students. Continuous informality throughout the researcher development process in higher education leaves the researchers' maturation to chance (Raddon, 2011).

Training researchers is a lengthy process that is frequently segmented by scientific fields. For instance, educational research literacy (ERL), which is considered a domain-specific skill (Groß Ophoff et al., 2015; Lea & Street, 2006), can differ significantly from medicine RL. Different domains exhibit varying levels of RL training interest and development. A search for "research literacy" in Scopus on November 5, 2022, yielded only 201 results since 1996, with 104 records in the social sciences subject area and 113 records in medicine, nursing, and health sciences. The health-related subject area is the most active, whereas education science is much less active on this topic.

Across domains, RL studies appear to be closely associated to frontline practitioner roles, such as nurses (Hines et al., 2016), psychiatry residents (Forehand et al., 2022), social workers (Marsh & Fisher, 2008), and chaplains (Fitchett et al., 2012). In education sciences, they are schoolteachers (Evans, 2017) and Pre-Service Teachers or PST (Gutman & Genser, 2017). This list of practitioners does not include any researchers. In other words, RL studies focus more on practitioners than researchers even though researchers are much more engaged with research activities.

Universities are the primary research training institutions. Therefore, the author undertook a systematic literature review (SLR) to search for RL studies that reported university students and faculty members in the understudied domain of education science, with the goal of revealing: How is ERL trained, measured, and evaluated in the population of potential/established educational researchers in higher education?

Methods

Search strategy

The SLR was in accordance with the PRISMA 2020 Statement (Page et al., 2021). Scopus and Web of Science were searched on 20 June 2022 for original research articles in peer-reviewed journals using the keywords "research literacy" or "research literacies". Results were screened by checking the titles and abstracts of the records to determine their relevance. If marked as relevant, the full text files of the records were downloaded for additional relevance evaluation based on the eligibility criteria.

Eligibility criteria

Articles were included if they were published in English, in peer-reviewed journals, reported RL intervention(s) or measurement at the higher education level in the domain of education sciences, collected empirical data from actual participants, and were available in full text.

Articles were excluded if they were: (a) published in a language other than English; (b) not journal articles; (c) outside the higher education settings; (d) without RL intervention(s) or measurement; (e) studying subjects outside education sciences; (f) without full text files; (g) missing actual participants in the described intervention.

Data extraction

Based on the metadata downloaded from the two databases, a data extraction table was created, including the following columns of information: database source, publication year, authors, title, source title, abstract, and citations. All full text pdf files and corresponding citation records were saved in the Zotero software. The author read each article and extracted the following information: country, research purpose, research type, research design, discipline, intervention, education level, participants, measurement instrument, and results.

Identification of studies via databases

| Identification | Records identified from:
Scopus
(n = 193)
Web of science
(n = 176) | → | Records removed *before screening*:
Duplicate records removed
(n = 115)
Records marked as ineligible
by automation tools
(n = 36) *
Records in non-English
removed
(n = 11) |

| Screening | Records screened
(n = 207) | → | Records excluded by reading
abstracts
(n = 125) |

| | Reports sought for retrieval
(n = 82) | → | Reports not retrieved
(n = 11) |

| | Reports assessed for eligibility
(n = 71) | → | Reports excluded:
Not a journal article
(n = 11)
Not higher education level
(n = 13)
No intervention found
(n = 10) **
Not in education science
domain
(n = 23)
Intervention participants not
found
(n = 3) |

| Included | Studies included in review
(n = 11)
Reports of included studies
(n = 11) | | |

*If no keywords of "research literacy" or "literacies" were found in title or abstract of a record, the record is excluded.

**If it is a review study, even though it might not involve intervention it is not excluded.

Figure 1: The PRISMA flowchart

Data synthesis

This research followed the integrative method of qualitative evidence synthesis as described in Lin et al. (2022). Using the predefined ten parameters of information as the synthesis framework, the framework analysis (Oliver et al., 2008) was applied. It is a structured and transparent method for the analysis of primary qualitative data as it begins with an a priori framework of the concepts and themes against which the data is extracted and synthesized, and also maps the characteristics of each identified theme or topic area to allow for data further interrogation (Boland et al., 2017).

Results

Search results

Figure 1 depicts the procedure for data search and screening. 11 records (Table 1) out of 369 initial search results from the two databases met the eligibility criteria and were included for further actions.

Characteristics of included articles

According to Table 1, most reviewed articles were published in 2017. The nation with the most publications was Germany, followed by the United States and other nations (United Kingdom, Australia, Israel, and Jerusalem). There were six quantitative studies, three mixed-methods studies, and two qualitative studies. The most prevalent research design was the cross-sectional survey, closely followed by the pre-test–post-test control group design. Almost 73% of the eleven studies that collected data from PST students in teacher education programs. The sample size ranged from 14 to 2,113 participants.

Measure instruments of ERL

Over the past decade, a German academic team (Schladitz et al., 2013) has been developing and validating the LeScEd booklet, which is derived from the Learning the Science of Education (LeScEd, http://bit.ly/3TbNXy) project and serves as the measurement instrument to evaluate ERL. This booklet was the most frequently cited instrument in the sample of four studies (Groß Ophoff et al., 2015, 2017; Groß Ophoff & Egger, 2021; Schladitz et al., 2017) because of their continuous effort in sharing and reporting from their project. All test items were designed as forced-choice tasks, and it was suggested that, if adopted, the test should be divided into two tests to avoid testing effects due to repeated measurements (Groß Ophoff et al., 2015). The test questions fall into three categories: information literacy (IL), statistical literacy (SL), and ethical reasoning (ER) (evidence-based reasoning). The instrument has been tested using dependable scientific methods, such as pretest–posttest control group or cross-sectional/longitudinal surveys, and frequently with large samples of PST students (e.g., 2,113 in one study and 1,655 in another study, as shown in Table 1). The LeScEd booklet is available to other researchers for their own projects upon request.

Australia-based Han and Schuurmans-Stekhoven (2017) developed a two-scale, three-step RL framework. Two scales are source/literature search (SLS) and research integration methods (RIM), and three steps are technological searching and locating, accurate understanding and interpretation, and critical evaluation and synthesis of information. They claimed to have developed a survey questionnaire based on the information literacy self-

efficacy scale by Kurbanoglu et al. (2006). However, their 15-item scale was quite different from Kurbanoglu et al.'s 17-item scale. The additional information in their paper revealed that the authors' claim of basing their scale on Kurbanoglu et al. (2006)'s was likely an error. Instead, Han and Schuurmans-Stekhoven (2017) developed and validated "a 15-item self-report survey that captures two related factors–SLS and RIM–that are inter-temporally stable" to measure RL.

Jerusalem-based researchers Gutman and Genser (2017) identified three RL skills, including recognizing and defining a problem, formulating a research question, and designing a research method. They evaluated the impact of problem-based learning on 62 PST students' awareness of the relationship between RL and pedagogical practice using the pre-test–post-test control group design. The intervention consisted of a 12-week, 28-hour RL in education course that spanned one academic semester. As measurements, they utilized the Research Literacy Inventory (RLI, by Shank & Brown, 2013), the scoring scheme for the Research Literacy Task (RLT, by Gutman & Genssner, 2017), and online forum posts. The RLI consists of 18 self-reported statements. Before and after the intervention, students evaluated the statements on a five-point Likert scale. After one month of attending the intervention, students were provided with an empirical article and an open-ended RLT to evaluate the intervention's long-term impact. Students were required to analyze the article and demonstrate RL by defining the problem, identifying a similar problem in their own practice, formulating a research question, and designing a research method. For each aspect of recognizing, defining, formulating, and designing, students' responses were analyzed using the scoring scheme depicted in their study.

The Psychological Research Inventory of Concepts (PRIC) by Veilleux and Chapman (2017b) from the United States is another instrument worthy of mention. Two studies were conducted to develop and validate the instrument (Veilleux & Chapman, 2017a, 2017b). Although it is not an ERL scale, it was in the psychology field, which is highly relevant to education sciences. Their research demonstrates the validity and usefulness of the PRIC scale by conducting three studies with participants of both psychology major and non-psychology majors. PRIC is a "20-item vignette-based multiple choice measure to assess knowledge about research methods and statistics in psychology" (Veilleux & Chapman, 2017b, p. 2). A test with a score range of 0 to 20 takes approximately 30 minutes to complete. The respondents were required to provide either yes/no or mostly open-ended responses to the questions attached to each vignette. The PRIC measure is accessible to other researchers for use in their own projects upon request.

Multiple-choice questions and open-ended questions can be distinguished as two response formats in the aforementioned measures. Regarding measuring ERL, Schladitz et al. (2017) found no distinct advantage between the two response formats in terms of item's objective/subjective difficulty; therefore, both formats can be used in ERL tests.

Table 1. Key characteristics of sampled 11 articles

Article	Country	Type	Design	Participants	RL	Sample size (n)	Instrument
(Tuñón, 2002)	United States	Qual	case studies	doctoral students	IL	15	–
(Groß Ophoff et al., 2015)	Germany	Quan	CG pre-test–post-test	undergraduate students (a majority as PST)	ERL (IL, SL, and ER)	82–EG; 32–CG	LeScEd booklet
(Hosek, 2016)	United States	Qual	cross-sectional survey	university students	ML; IL	14	SDS: 2-item
(Schladitz et al., 2017)	Germany	Quan	cross-sectional survey	university students (58% as PST)	ERL (IL, SL, and ER)	600	LeScEd booklet
(Groß Ophoff et al., 2017)	Germany	Quan	cross-sectional survey	university students (51%–62% as PST)	ERL (IL, SL, and ER)	1,360–study 1; 753–study 2	LeScEd booklet
(Amir et al., 2017)	Israel	Mixed	action research (longitudinal)	PST	RL	74	–
(Han & Schuurmans-Stekhoven, 2017)	Australia	Mixed	CG pre-test–post-test; focus group interview	HDR (with PST as the control group)	RL; IL	38–EG; 10–CG	SDS: 15-item
(Veilleux & Chapman, 2017b)	United States	Quan	cross-sectional and longitudinal surveys	undergraduate psychology students and mTurk participants	RL; SL	521–study 1. 378–study 2 (83–EG; 295–CG). 72–study 3	PRIC vignettes
(Gutman & Genser, 2017)	Jerusalem	Mixed	CG pre-test–post-test	PST	RL	62	RLI; RLT
(Groß Ophoff & Egger, 2021)	Germany, Austria	Quan	cross-sectional survey	mostly PST	ERL (IL, SL, and ER)	1,360–Germany 295–Austria	LeScEd booklet
(Scanlan, 2021)	United Kingdom	Quan	one group pre-test–post-test	undergraduate PST	RL	220	SDS: 3-item

Note: Qual=Qualitative research; Quan=Quantitative research; Mixed=Mixed-methods research; PST=pre-service teachers who are enrolled in teacher education program(s); HDR=higher degree research; mTurk = Amazon Mechanical Turk; ECT=early career teacher; RL=research literacy; ERL=educational research literacy; IL=information literacy; ML=media literacy; ER=evidence-based reasoning; SL=statistical literacy; DL=digital literacy; SDS=self-developed survey; EG=experiment group; CG=control group; LeScEd booklet=Learning the Science of Education (LeScEd) project's test for the assessment of Educational Research Literacy; PRIC=Psychological Research Inventory of Concepts; RLI=Research Literacy Inventory (Shank & Brown, 2007); RLT=Research Literacy Task.

Interventions of ERL

Table 2 compares eight interventions found in eleven studies, excluding three studies that did not report any interventions (Groß Ophoff et al., 2017; Schladitz et al., 2017; Groß Ophoff & Egger, 2021). On the basis of a subjective evaluation of the replicability of these eight interventions, four were rated as high and four as low.

High-level replicability intervention 1. Tuón (2002) reported that the ERD8226 course trained doctoral students in education in information literacy and had both online and face-to-face formats. The online course consists of an introduction page and nine modules which spread over eight weeks. Students learned how to select databases, refine a search, and locate and retrieve full text documents during weeks 1–4. The fifth week covered research types, publication types, publication cycle stages, etc. The weeks 6–7 focused on print resources and websites/search engines. Week 8 focused on the university library's document delivery service. Before and after taking the course, students were not evaluated on their information literacy skills. The course included two assignments (20% and 50% of the course grade), an online group project (30% of the course grade), and weekly forum participation. However, based on student feedback regarding the first iteration, the second iteration changed one assignment into a series of mini assignments, gave students the option between forum discussions and short essays, and eliminated the team project. Consequently, the course has become more of an independent learning experience than a team-based one. The online course was later redesigned to fit into a one-day summer institute course. Comparing the two formats with regard to the output quality of students revealed no significant difference.

High-level replicability intervention 2. The purpose of the Research Ripped from the Headlines (RRH) assignment was to train students through a six-component intervention to become critical research consumers (Hosek, 2016). Component 1: Students locate research-related news from various sources; once selected and approved by the teacher, students post the news articles to the class Twitter feed using the #RRH hashtag. Component 2: Students locate, read, and summarize the research mentioned in the news articles. Component 3: During reading, students annotate the article, which later becomes part of their presentation in class. Component 4: Students identify and describe the connections between the research and the course content. Component 5: Students speak with at least one person outside of class about the news or/and related research to elicit feedback on the topic. Component 6: Each student gives a 10-minute presentation to their classmates. The research process, paradigms, everyday ways of knowing, forming arguments and making claims, and the ethics of communication research were used to stimulate class discussions. Utilizing a post-assessment survey with two questions (see p. 51), fourteen students' learning and affective motivations for the assignment were examined. Students responded positively to the assignment, as revealed by four themes in the survey results: "content mastery, learn from peer observation, research consumption habits, and information literacy development" (p. 51).

High-level replicability intervention 3. The intervention designed by Gutman and Genser (2017) centered on the transmission of three RL skills: "identifying and defining a problem, formulating a research question, and designing a research method" (p. 63). Participants were divided into two learning communities (LC): online (OLC; 31 students) and blended (BLC, 34 students). Both LC utilized the same course materials, exercises, and tasks and were instructed by the same instructor. OLC students studied solely independently, whereas BLC students also participated in lectures and in-person discussions. All participants engaged in four-week online forum discussions. Week 1: students received the RLI-based pre-test. Week

2: students discussed to cooperatively define the term–research problem (first forum). Week 5: they identified a particular research problem faced by them in the field (second forum). Week 8: they formulated an appropriate research question through discussions (third forum). Week 11: students together designed a procedure that was considered suitable for investigating the formulated research question (fourth forum). Week 12: students received the RLI-based post-test. Week 16: the RLT was given to participants to evaluate the long-term effect of the intervention. Immediate after the intervention, the three RL skills improved significantly, but there was no significant difference between OLC and BLC regarding the immediate effect of PBL on RL. Regarding the long-term impact of PBL on the three RL skills, the OLC group outperformed the BLC group. Long-term evidence suggests that self-regulated asynchronous learning benefits students' retention of RL skills more than synchronous learning.

High-level replicability intervention 4. The two-scale three-step RL framework by Han and Schuurmans-Stekhoven (2017) was used to design RL training workshops for higher degree research students at a university in Sydney. Using a parallel group design, they assigned 38 higher degree research students to the control group and 10 to an intensive 12-week, 2-hour-per-week workshop on teacher research education. The proposed framework makes it easier for other practitioners to replicate their design. The focus of their study, however, was to validate a self-designed survey; hence, it did not introduce the implementation of this design, leaving many questions regarding the intervention unanswered. The intervention groups were interviewed following the workshops and provided positive feedback regarding their learning experience. However, the interview results also concluded that "short-term intensive training may have provided theoretical knowledge of what information to process and how to process it, but it is insufficient for students to fully comprehend its application in their own practice" (p. 38).

Low-level replicability intervention 1. The intervention by Groß Ophoff et al. (2015) was a two-part course titled "Introduction to research literacy" for undergraduates. The first section consisted of a two-day orientation module to the university/program that covered seven units. The course covered ESL topics including "comprehensive reading strategies, literature research, and both qualitative and quantitative research designs" (p. 563). The second section consisted of seven units that were delivered every two weeks throughout the semester and focused on scientific writing. The design, development, and implementation of the intervention were not specified. The participants completed the pre-test and post-test using two distinct LeScEd booklets.

Low-level replicability intervention 2. A teacher education college offered four groups of PST students a weekly RL course for one year (Amir et al., 2017). The intervention was used to investigate discomfort rather than RL; yet it instructed students on how to formulate a research question for conducting action research. It engaged students in a one-month Moodle forum discussion followed by two one-day workshops. On the Moodle platform, the formulated and approved research questions were uploaded. The study only reported three-month activities and provided no additional information regarding the course's design or delivery. Students were not evaluated on their RL levels. Instead, their artifacts, forum posts, and researcher logs were analyzed. Students' formulation of research questions to integrate action research into teacher education was revealed to be a crucial and highly complex step, as indicated by the findings. To shed light on the reality of their work in an educational setting, it is crucial that PST students "experience action research in several cycles as they

learn and experience the discourse…in order to shed light on the reality of their work in an educational setting" (p. 13).

Low-level replicability intervention 3. Veilleux and Chapman conducted a similar study that, rather than introducing RL training interventions, aimed to validate their survey measure instrument (2017b). Their investigation revealed three studies, with the third study mentioning mandatory research methods courses for psychology majors at the University of Arkansas. 72 psychology students participated in the study by taking the PRIC test during the first and final weeks of the semester. The results demonstrated that students' PRIC scores increased as the course progressed, demonstrating the test's ability to assess research methods and statistical knowledge.

Low-level replicability intervention 4. University of Winchester placed a two-year intervention for its 220 ITE undergraduate students in their second and third year of the degree program (Scanlan, 2021). This was the longest intervention of the sampled studies. Students received "some taught input on research methodology and methods with a focus on action research and ethical research practice" (p. 4) and "were supported by a university tutor with relevant subject and research expertise" (p. 5). The assistance encompassed approving research proposals, supervising data collection, and directing the final written research reports. The description of such an intervention, however, was limited.

Table 2. Interventions found in eight articles

Article	Intervention	Format	Purpose	University
(Tuñón, 2002)	Information Literacy Skills for Doctoral Students in Education (RD8226)	Course	Introduce students to use library resources for literature reviews.	Nova Southeastern University
(Groß Ophoff et al., 2015)	Introduction to research literacy	Course	Introduce students to ERL and necessary skills.	Pädagogische Hochschule Freiburg
(Hosek, 2016)	Research Ripped from the Headlines (RRH)	Assignment	Increase information literacy related to research gathering, critique, analysis, and implementation.	Ohio University
(Amir et al., 2017)	Research literacy	Course	Guide students to formulate a research question for action research; provide academic tools for students to deal with discomfort in teaching.	Achva Academic College of Education
(Han & Schuurmans-Stekhoven, 2017)	HDR teacher research education program	SAU + Workshops	Improve students' RL by running a program designed with the two-scale, three-step RL framework.	Western Sydney University
(Veilleux & Chapman, 2017b)	Research methods courses Ω(in study 3)	Course	Introduce students to research methods.	University of Arkansas
(Gutman & Genser, 2017)	Research literacy in education	Course	Train students in RL using a PBL approach.	Efrata College of Education
(Scanlan, 2021)	Practitioner-focused classroom research	Research practice	Guide students in actual action research related to one aspect of teaching practice.	University of Winchester

Table 2. Interventions found in eight articles (continued)

Article	Provider	Delivery	Media	Duration	Replicability
(Tuñón, 2002)	Library	Online; F2F	WebCT	8 weeks (online); 1-day for 8 hours (F2F)	High
(Groß Ophoff et al., 2015)	University	F2F	Unclear	Part 1–seven units (90 minutes each) in two days; Part 2–seven units every two weeks in the semester	Low
(Hosek, 2016)	Hosek	Blended	Twitter, Blackboard	One semester	High
(Amir et al., 2017)	Four lecturers	Blended	Moodle	One year: 2 hours per week	Low
(Han & Schuurmans-Stekhoven, 2017)	Unclear	Unclear	Unclear	12 weeks: 2 hours per week	High
(Veilleux & Chapman, 2017b)	Chapman	Unclear	Unclear	Five sections of research methods taught in summer, fall semester, and spring semester	Low
(Gutman & Genser, 2017)	Unclear	Online; Blended	Online forums	One semester (12 weeks): 28 hours	High
(Scanlan, 2021)	University	Unclear	Unclear	Two years	Low

Note: F2F=Face to Face; BA=Bachelor of Arts; HDR=higher degree research; SAU=supervision-as-usual; PBL=problem based learning; PST=pre-service teachers; ITE=initial teacher education.

Conclusion

This systematic literature review selected and synthesized eleven peer-reviewed journal articles that reported either RL training interventions or RL measurement instruments in the context of higher education with a focus on education sciences. Two validated measurement instruments were discovered: the LeScEd booklet and the PRIC vignettes. In comparison to other less reliable scales, these two instruments adopted a test format rather than a survey format, were tested on large sample sizes, and are available upon request to other researchers. This review also identified eight RL training interventions, which were compared in terms of their format, purpose, university, participants, provider, delivery, media, duration, and replicability. On the basis of their replicability, they were categorized as either low-level or high-level, indicating the difficulty of replicating them elsewhere.

The next step is to investigate the synonyms (e.g., research competency, research skills, research abilities) and offspring concepts of RL (e.g., statistics literacy, information literacy) through a thorough literature review to better comprehend the current state of the research landscape on this topic. In the meantime, it is also worthwhile to review measurement scales and training interventions from other domains to borrow common knowledge and estimate the differences between domains' RL measurement. Other publication types, including books, were excluded from this evaluation. When reviewing, two highly relevant books were discovered (Badenhorst & Guerin, 2016; Shank & Brown, 2007). Furthermore, these materials are highly pertinent.

Acknowledgments

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Shared Strategic Leading:
The Leadership of Academic Deans of Centers of Excellence in the Philippines

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Abstract
The study aimed at producing a substantive grounded theory of the leadership of academic deans of Centers of Excellence in Philippine Higher Education Institutions. The classic grounded theory method was employed. Fourteen academic deans from various disciplines and regions of the Philippines participated in the study. Participant interviews were used as the primary source of data. Data analysis was performed through classic grounded theory coding. The study concluded that shared strategic leading predominantly describes the leadership of academic deans of Centers of Excellence in the Philippines. Results showed that shared strategic leading is intrinsically influenced by the academic deans' people skills; extrinsically, by their loyalty to the institution, and experiences in learning leadership. This study recommended that other academic deans be informed of the best shared strategic leadership practices of their colleagues to improve the quality of their academic programs. Further research on academic deanship in the Philippines was also proposed.

Keywords: Higher Education, Classic Grounded Theory, Shared Strategic Leading, People Skills, Institutional Loyalty, Learning Leadership

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Introduction

The Academic Dean

The 'academic dean' is specified as such to differentiate it from other deans that Higher Education Institutions (HEIs) may have in their organization. The term 'academic dean' has grown to be used more and more to refer to higher education leaders of discipline-specific colleges in universities (Wolverton, et al., 2001). The central concern of the academic dean is the academic program - the heart of the college, 'the point where all the forces that create the modern academy converge' (Bright and Richards, 2001, p.178). Academic deans lead from the 'middle' (Buller, 2007). They bridge central administration with the faculty; as such, they are the crucial backbone of decision making in the university (Arntzen, 2016). The praxis of academic leadership from the 'middle' and how critical it is in the success of the university is understood by studying the leadership of academic deans.

The concept of the standardized dean does not exist. The concept of deanship is different from country to country, more so across institutions in the same country (Arntzen, 2016). However, there are academic deans of colleges who lead in an environment where educational standards are much higher than others. In Philippine higher education, these are called Centers of Excellence (COEs) as recognized by the Commission on Higher Education (CHED). This study aimed to discover a theoretical framework explaining the leadership of academic deans in these COEs and develop a substantive theory to maintain this standard of excellence. Classic grounded theory methods were used to research on the interaction between the academic leadership of deans of these COEs and the environment that a COE creates.

CHED Centers of Excellence

The Philippine Higher Education Act of 1994 empowered CHED to 'identify, support and develop potential centers of excellence in program areas needed for the development of world-class scholarship, nation building and national development' (CHED, n.d.). The COE program was born as a result of this mandate. A COE is defined as a 'department within a higher education institution, which continuously demonstrates excellent performance in the areas of instruction, research and publication, extension and linkages and institutional qualifications' (CHED, n.d,). COEs provide a standard of institutional academic excellence in their respective disciplines not only in the regions where they are located, but also throughout the nation. They are prioritized among CHED's institutional partners when it comes to CHED's developmental projects and are also entitled to non-monetary subsidies and awards (CHED, 2006). On the other hand, among their broad responsibilities are upgrading research and advancing quality education in their respective disciplines.

The Problem

Table 1 shows the number of HEIs, as well as those with COEs, both public and private in all of the regions in the country. The concentration of HEIs with COEs in the country can be found in four regions: National Capital Region (29.2%), Calabarzon (11.1%), Central Visayas and Northern Mindanao (8.3% each). These four regions (out of 17) account for 56.9% of the total number of HEIs with COEs in the country. Nationwide, only 3.0 % of the HEIs have COEs. These statistics show the uneven distribution of HEIs with COEs in the country.

These data indicate that Philippine higher education has a gargantuan task of improving the quality of education on its shoulders. Needless to say, the thousands of academic deans all over the country play a major role in this. In recent decades, with the thrust for universities to be 'entrepreneurial, financially self-sufficient and innovative', the role of the academic dean became 'more demanding, more senior, more strategic, more complex' (de Boer and Goedegebuure, 2009, pp.1,4). More than their forerunners, modern deans are thus seen as 'strategic actors' with newer challenges to deal with (p.3).

Region	Total No. of HEIs	No. of HEIs with COE				% of HEIs w/ COEs in the Phil
		Public SUCs	Private	Total	% of HEIs in the region	
01-Ilocos Region	113	3	2	5	4.4	6.9
02-Cagayan Valley	73	2	2	4	5.5	5.5
03-Central Luzon	239	2	1	3	1.3	4.2
04-Calabarzon	338	3	5	8	2.4	11.1
05-Bicol Region	170	1	1	2	1.2	2.8
06-Western Visayas	155	2	1	3	1.9	4.2
07-Central Visayas	165	2	4	6	3.6	8.3
08-Eastern Visayas	89	1	-	1	1.1	1.4
09-Zamboanga Peninsula	85	1	1	2	2.4	2.8
10-Northern Mindanao	114	4	2	6	5.3	8.3
11-Davao Region	98	1	2	3	3.1	4.2
12-SOCCSKSARGEN	114	1	-	1	0.9	1.4
13-National Capital Region	347	3	18	21	6.1	29.2
14-Cordillera Administrative Region	54	1	3	4	7.4	5.5
15-Bangsamoro Autonomous Region	93	-	-	-	0.0	0.0
16-Caraga	55	1	-	1	1.8	1.4
17-MIMAROPA	91	2	-	2	2.2	2.8
Total	2,393	30	42	72	3.0	100.0

Table 1: Distribution of HEIs with COEs by Region: AY 2017-2018.
Data based on information from CHED. https://ched.gov.ph/wp-content/
uploads/2019- List-of-COE-and-CODs.pdf

The sad state of affairs is that despite these ever-growing challenges that modern academic deans face today, they assume their office with 'absolutely no training in, credentials for, or knowledge about the central duties of the position' (Gmelch and Buller, 2015, p.2). Plessis (2012, p.2) refers to this as a 'leadership crisis in higher education.' This is the reason why the journey of academic deans of COEs in HEIs in the Philippines is worthy of investigation. In the midst of the challenges confronting academic deanship in the 21st century, current and future academic deans can certainly learn from the stories of academic deans of COEs. Overseas in recent years, the volume of literature on academic leadership and in particular, academic deanship, has been steadily growing. Unfortunately, this is not the case in the Philippines. Specifically, there has been no research made on the leadership of academic deans of COEs in Philippine HEIs. It will be healthy for higher education in the Philippines if this research gap were filled.

Statement of Purpose

This study investigated the leadership of academic deans of COEs in HEIs in the Philippines, broadly, their personal description of their leadership role and contribution to setting a standard of institutional academic excellence in HEIs in the Philippines; and their leadership learning experiences as academic deans of COEs in Philippine HEIs.

Significance of the Study

The role of academic deans in higher education cannot be taken lightly. They are referred to as the 'unsung professionals of the academy,' (Rosser as cited in de Boer and Goedegebuure, 2009, p.1) the 'cornerstone of higher education' (Wolverton, et al., 2001, p.ix). In the Philippines, they share CHED's vision-mission to catalyze a 'Philippine higher education system that is locally responsive and globally competitive,' (CHED, n.d.a). A new challenge lies before them now with the uncertainties brought about by the COVID-19 pandemic. How can excellence be maintained in the midst of such a crisis? What demands will post-pandemic education present? In this light, research on the leadership of academic deans of COEs in HEIs in the country can inspire and provide practical applications for current and future academic deans towards excellence in the performance of their jobs. Furthermore, it can provide literature on the under-researched topic of academic deanship in the Philippines, especially on academic deanship in COEs.

Methodology

Research Design: The Classic Grounded Theory Method

The classic grounded theory method was employed in this research. Glaser and Strauss (1967,p.1) defined the method as 'the discovery of theory from data systematically obtained and analyzed in social research.' Birks and Mills (2015, p.17) cited three reasons for the appropriate use of the grounded theory method: first, when not much information is available on the topic of enquiry; second, when the coveted outcome of the research is the generation of theory that explains it; finally, when the research has an intrinsic process found in it. This research satisfied all three. The grounded theory method is especially valuable in studying processes. The line-by-line analysis of data in grounded theory promotes analytical thinking and produces results not accomplished by other methods (Urquhart, 2013).

Data Collection and Generation

Practicing reciprocity, reflexivity, and theoretical sensitivity throughout data collection and generation ensured the quality and ethical integrity of the research (Birks and Mills, 2015; Glaser, 2001; Glaser and Holton, 2004). This research employed two other foundational concepts in the classic grounded theory methodology: constant comparison and theoretical sampling. Constant comparative analysis of incidents to incidents, concepts to more incidents, and concepts to concepts led to theoretical integration (Glaser and Holton, 2004). Beginning with the initial sample, we used theoretical sampling to guide us into what data were to be collected next and where to find them for the development of the theory as it emerged (Glaser and Strauss, 1967). Theoretical sampling continued until theoretical saturation was achieved, when no new properties emerged from the pattern resulting from constant comparison in data analysis (Glaser, 2001).

Our interviews were unstructured so that we would be able to get more out of them. They gave our participants greater control and their answers directed the course that the interview took (Birks and Mills, 2015). To avoid preconception, questions were not pre-planned. Following the Glaser dictum that 'all is data,' all that was happening in the research scene, as well as all the data surrounding it was taken in as data (Glaser, 2001). We refrained from the use of extant literature as a data source until after the emergence of the core category in data analysis (Holton and Walsh, 2017). In so doing, any influence that the extant literature may have on the emergent concepts was avoided.

Participants

The initial sample was purposive. An academic dean from our home institution was invited as our initial research participant. Our home institution leads the private HEIs in the number of COEs with 14. The next 13 participating deans were chosen through theoretical sampling. For anonymity, the 14 deans were referred to as Deans A to N, representing half of the regions in the country (8/16): four in Luzon, two in the Visayas, and two in Mindanao. These deans were from 14 out of the 72 HEIs with COEs (or 19.4%). They belonged to the disciplines of Engineering, Social Sciences & Communication, Business & Management Education, Information Technology, Humanities, Teacher Education, Agriculture, and Science & Mathematics. Half of the deans were from State Universities and Colleges, while the other half were from private universities.

Data Analysis

The two types of coding in classic grounded theory were used for data analysis: substantive coding and theoretical coding. Substantive coding is the 'process of conceptualizing the empirical substance of data' (Holton and Walsh, 2017, p.80), producing substantive codes. The two stages in substantive coding are open coding and selective coding (p.87). In this research, open coding was done incident-by-incident and substantive codes were assigned (Glaser, 1978). The conceptual framework emerged once the potential core category was identified (Birks and Mills, 2015). This was when data analysis shifted from open coding to selective coding. In theory-testing research, a framework is developed from literature, used, and then extended based on the findings (Urquhart, 2013), unlike in classic grounded theory where the framework arises from the data. From here on, selective coding was limited to only those concepts significantly related to the core variable to produce a parsimonious theory (Glaser and Holton, 2004), ceasing when such concepts were no longer produced. Theoretical coding was then applied to conceptualize the possible relationship of substantive codes to each other (Urquhart, 2013), producing theoretical codes. With theoretical coding, the integration of theory began.

Writing Up a Substantive Grounded Theory

The objective for this research was to write a substantive grounded theory. A core category and four subcategories were sufficient for the conceptual needs of a substantive grounded theory (Glaser, 2012). The purpose for the write up was 'to capture the integration of the substantive grounded theory into a conceptual explanation of how a core category is continually resolved' (Glaser, 2012).

Findings/Results

We used an audit trail in presenting our research findings in order to show how the theory had emerged directly from raw data, validating the research findings and grounding them in the evidence (Bowen, 2009). The first stage of open coding analyzed data from the first four participants, Deans A, B, C, and D. The second stage of open coding analyzed data from Deans E, F, and G, all from Teacher Education, the discipline with the greatest percentage of COEs. Five categories were emergent at this point: displaying loyalty to the institution, employing people skills, devoting to the full mandate of education, learning leadership, and strategic leading, the potential core category. Strategic leading was identified as such following the criteria cited by Glaser and Holton (2004) in selecting and confirming a core category, namely: centrality, frequency, relevance, grab, and variability. As a potential core category had emerged, we used extant literature to define and describe strategic leading in greater detail.

The strategic leading model may just be the effective and practical approach to deal with ever-changing conditions happening at an accelerating pace in a VUCA (volatility, uncertainty, complexity, ambiguity) world. Strategic leadership is also defined 'as the ability (as well as the wisdom) to make consequential decisions about ends, actions, and tactics in ambiguous environments' (Pisapia, 2009, p.7). As theorized by John Pisapia (2009), it is not dependent on a linear thinking mindset and is not limited to strategic planning which is but one of several approaches to strategy. Davies and Davies (2006) supported this in proposing the deployment of not just one, but a reserve of strategic approaches in school. Their study focused on the strategic dimension of leadership. Boyko and Jones (2010) referred to deans as strategists and department chairs, as tacticians. The pandemic caused by COVID-19 has also given rise to adaptive academic leaders who responded strategically in crisis (Fernandez and Shaw, 2020).
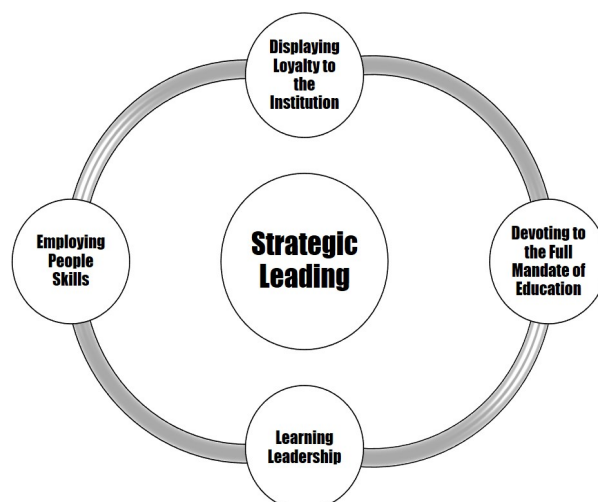
Figure 1. Conceptual Framework after Open Coding

Figure 1 (by the authors) shows the conceptual framework that emerged since the potential core category had been identified. The radial cycle framework is used to show the relationship of the four sub-categories to the emerging core category. It gives emphasis to strategic leading as the emerging core category and the contribution of the four sub-categories to its behavior.

Shared Strategic Leading as Core Category

In the first stage of selective coding, we continued our analysis with additional data gathered from Deans H to L. We were more 'selective' in continuing only with codes and concepts which were related to the emerging core category strategic leading. We noted at this stage of the analysis that a number of deans related incidents of sharing specific strategic functions with their subordinates. Among the concepts under strategic leading, the concept empowering to execute the vision had the most number of incidents from the most number of deans (10/12). This concept covered incidents which referred to the empowering of college administration, faculty, staff, and students to participate in the fulfilment of the vision.   It has been said many times over, we live in challenging times. Strategic leadership then has become necessary for organizational members at all levels of the organization. Duursema (2013) refers to this as shared strategic leadership. In shared strategic leadership, the strategic functions are distributed and shared with the other team members and effectuated by them, making the process a collective effort (Duursema, 2013). It is a conscious effort to move beyond the leader-follower dyad in leading organizations and is found to be a more important factor than vertical leadership in bringing about team effectiveness. A study of sixty-seven articles on strategic leadership identified the involvement of the staff in planning and action and leading collaborative practices, as well as the promotion of professional development outside of central administration, as among its main features (Carvalho et al., 2021). This is similar to the findings of Witherspoon (2019) as to what strategic leading is in reality – i.e., it is practiced at every level of the organization. Mustering their abilities as they are empowered and equipped, these team members are able to help in accomplishing the strategic goals of the organization. With these results and literature, we identified shared strategic leading as the new emergent core category.

Data from the last two deans (Deans M and N) were analyzed in the second stage of selective coding. Before the start of the second stage of selective coding, shared strategic leading was identified as the emergent core category. It remained as such at the end of the second stage, again satisfying the criteria set by Glaser and Holton (2004) in identifying core categories. This study showed that shared strategic leading predominantly describes the leadership of academic deans of COEs in Philippine HEIs. Much as there is a standard to be maintained, i.e. being a COE, all the more there was a need for the deans to be strategic with their functions and make the process a collective effort by sharing these with the rest of the team at every level of the organization.

Shared strategic leading was identified as a basic social structural process, satisfying the criteria set forth by Glaser (1978), As such, it emphasized the wider social structure regarding the main phenomenon. It accounted for the changes in the various sectors in the HEI as it progressed through its various stages. The subsequent identification of conceptual relationships between the core category and the sub-categories then paved the way for the emergence of a parsimonious theory.

Conceptual Relationships

From analyzing the data gathered after interviewing the 14th academic dean, no new properties emerged, only more indicators of the same properties. Theoretical saturation had been reached (Holton and Walsh, 2017). As that which theoretically integrates the core category and related concepts, theoretical codes then gave 'integrative scope, broad pictures and a new perspective' of the categories that had been saturated (Glaser, 1978, p.72). The

emergent conceptual relationships between the core category and the related sub-categories were identified by employing the coding families suggested by Glaser (1978) and literature.

The theoretical code describing the conceptual relationship between shared strategic leading and employing people skills was 'building.' From Glaser (1978), the relationship could be coded as mainline, particularly social interaction and socialization (i.e., training people for participation). Citing consensus, goodwill, and trust as conditions for the success of strategic leadership, Glotzboch (2009) emphasized the need to lead interactively. The findings of Witherspoon (2019) on the actual practices of strategic leading connected shared strategic leading with employing people skills (establishing a sense of community, reinforcing self-value, strengthening relationships, and harnessing the collective strategic capacity of all employees). The deans related incidents on how sharing specific strategic functions with their subordinates was influenced by their people skills: e.g., in 'building' and maintaining healthy relationships and in 'building' unity. Evidently, there was a strong link here between shared strategic leading and employing people skills. In fact, employing people skills showed to be an intrinsic factor in shared strategic leading.   This is stated in Proposition 1.

The theoretical code describing the conceptual relationship between shared strategic leading and displaying loyalty to the institution was 'attracting.' From Glaser (1978), the relationship could be coded as mainline, particularly social control (i.e., keeping people in line). In a study made on academic leadership during the COVID-19 pandemic, Fernandez and Shaw (2020) cited that by constantly reassuring the stakeholders that their strategic vision for crisis resolution was in keeping with the institutional goals and mission, academic leaders were 'attracting' institutional buy-in and commitment of the stakeholders. Strategic leadership as practiced in every level of the organization gets the team more invested in its success (Witherspoon, 2019). In our study, more than 85% of our deans have been serving their colleges for at least 15 years. Such Loyalty to the institution has resulted in 'attracting' like dedication from faculty, staff, students, and alumni. In all these, the deans displaying loyalty to the institution proved to be an extrinsic factor in shared strategic leading. This is stated in Proposition 2.

The theoretical code describing the conceptual relationship between shared strategic leading and learning leadership is 'continuing.' From Glaser (1978), the relationship could be coded as mainline, particularly socialization (i.e., training people for participation). According to Thompson, et al. (2006), the chances of 'continuing' short-term and long-term organizational leadership are improved with the existence of systematic and effective succession planning in the organization. Long, et al. (2013) define succession planning as 'a proactive process that ensures "continuing" leadership committed to the organization's value, mission, and strategic plan by intentionally developing employees within the organization for advancement' (p. 73). The deans shared experiences on how they learned leadership through the mentoring of their former deans, on plans to continue what their former deans had started, and how conscience dictated for them to accept the deanship for another term. Learning leadership then emerged as another extrinsic factor in shared strategic leading. This is stated in Proposition 3.

After analyzing and validating the emergent core category and its conceptual relationships with the emergent sub-categories, we came up with the emergent theoretical model for "The Leadership of Academic Deans of Centers of Excellence in the Philippines" as shown in Figure 2 by the authors. The emergent substantive theory and its propositions are also summarized.

The Emergent Theoretical Model
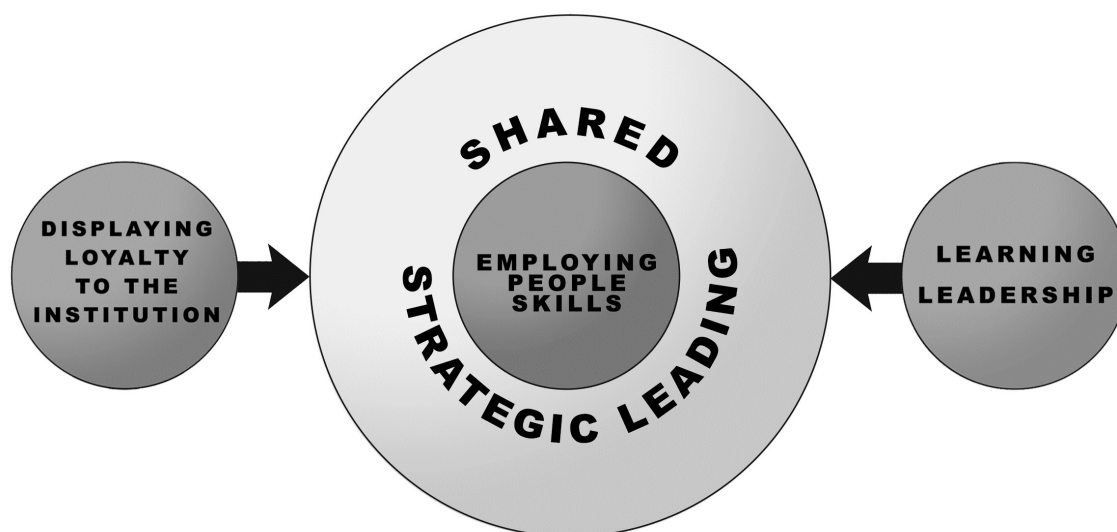
Figure 2. The Emergent Theoretical Model
Shared Strategic Leading:
The Leadership of Academic Deans of Centers of Excellence in the Philippines

The position of shared strategic leading in the middle and its size compared to that of the sub-categories speak of its centrality and grab in the main concern of the study. The model makes use of spheres since shared strategic leading as a process is multi-directional, not linear. Employing people skills is shown inside shared strategic leading due to its intrinsic relationship with the latter. Displaying loyalty to the institution and learning leadership also influence shared strategic leading, but not to the extent that employing people skills does and are thus found outside of shared strategic leading.

The Substantive Theory and its Propositions

Shared strategic leading predominantly describes the leadership of academic deans of COEs in HEIs in the Philippines. In achieving and/or maintaining the status of their colleges as homes to COEs, these academic deans lead strategically with their faculty, staff, and students and empower them to participate in fulfilling and sustaining the vision for educational excellence. Their shared strategic leading is intrinsically influenced by their people skills and extrinsically, by their loyalty to the institution and commitment to learn leadership. The relationship between shared strategic leading and employing people skills, displaying loyalty to the institution, and learning leadership are stated in the following propositions:

Proposition 1. Academic deans of COEs in Philippine HEIs successfully implement shared strategic leading in their colleges by employing their people skills in building trust for leadership, a sense of community, and the collective strategic capacity of both faculty and staff.

Proposition 2. The Shared strategic leading of academic deans of COEs in Philippine HEIs is positively influenced by the deans' loyalty to the institution, as a result attracting institutional commitment and investment by stakeholders.

Proposition 3. The learning leadership practices of academic deans of COEs in Philippine HEIs ensure continuing shared strategic leading in the organization.

There is a consensus among the participating deans that the recognition of their colleges as COEs is to be a priority. It is acknowledged that such recognition does not come by happenstance. The main responsibility of applying for and maintaining the recognition may be within the purview of the department but we have seen that in reality, the whole college is involved.   Furthermore, the support of central administration is vital.

More than the prestige that comes with the recognition, the participating academic deans are very much aware of the responsibilities that come with it. Theirs is the responsibility to raise the standard in higher education by imparting their expertise to the rest of the province, region, and nation. The conviction as a COE must first be an inner reality for the dean. As one of the deans aptly put it, the recognition of being a COE starts in the mind. The externals confirm inner realities.

The leadership of a college that is a COE is therefore for those who will get their faculty, staff, and students to share and participate in fulfilling this responsibility. Not all HEIs aspire to be COEs. Some do but fall short of achieving such a recognition. This substantive theory shows us what kind of leadership is successfully accomplishing it. It is shared strategic leading. As it is now generally accepted that leaders are mainly made and not born, shared strategic leading can then be learned. This substantive theory can be of help in this regard.

Conclusion

Based on the findings of the study, we conclude that academic deans of COEs in Philippine HEIs apply shared strategic leading in achieving and/or maintaining the status of their colleges as homes to COEs. They also involve their faculty, staff, and students in fulfilling and sustaining the college's vision for educational excellence. Finally, the shared strategic leading of academic deans of COEs in Philippine HEIs is intrinsically influenced by their people skills, and extrinsically by their loyalty to the institution and their experiences in learning leadership.

Based on our conclusions, we recommend that the results of this study be made available to the other academic deans in the country as a reference for improving the quality of their academic programs. Secondly, we further recommend that the same results be communicated to the top administration of Philippine HEIs to offer them ideas in preparing their prospects for deanship. Lastly, further research on this topic should be done. For one, there is an unfortunate lack of research on academic deanship in the country, more so on academic deanship in COEs.   Much can be learned from exemplars, as well as from academic deans who may be faced with unique challenges in their respective colleges. Research on theoretical models for strategic leadership in schools can also be undertaken.

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Revealing Teachers' and Students' Perception of the Use of Flipgrid for Speaking Assessment

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Abstract

Integrating technology into teaching and learning has become a global issue in response to the 21st skills. There has been a force to advance digital education with the current pandemic. Technology and the internet have become the leading platforms for learning and assessment. This explanatory sequential mixed-methods design explores teachers' and students' perceptions of using Flipgrid to assess speaking skills. Online surveys using questionnaires were given to teachers (n=24) and students (n=113) who had experience using Flipgrid in their classes. Semi-structured interviews followed with the selected participants to deepen their perception of Flipgrid. The result revealed some perspectives on speaking assessment activities using this video discussion platform. The study recommends that teachers, students, and other stakeholders apply Flipgrid in the context of English Language Teaching (ELT).

Keywords: Digital Tools, Flipgrid, Speaking Assessment, Students' Perceptions, Teachers' Perceptions

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Introduction

Assessment has long been considered an essential component in teaching and learning. However, with the current pandemic outbreak, assessing students has been challenging, especially when the classrooms have been migrated to online platforms (Akimov & Malin, 2020; Seifert & Feliks, 2019; Sojayapan & Khlaisang, 2020). Thus, the technology integration tools in education have affected redesigning the instructions and evaluation for online learning. Teachers can now deliver online course content in various rich formats due to simple video and audio recording technologies (Keiper et al., 2020; Meinawati et al., 2020; Nakatsuhara et al., 2017; Orlando, 2016). It can be seen that technology has supported the demand in the educational field.

A challenging problem in this domain is teachers are being flooded with decisions about which technologies are the easiest, the best, and most fascinating to use to assist students in enhancing their knowledge (Miller et al., 2020). The concerns, however, are not solely about the delivery of the lessons but also about measuring students' capability to grasp those lesson materials. Practical assessment seems to be a standard research issue in traditional classroom settings (Condon & Kelly-Riley, 2004; Gultom, 2016; Nikolov, 2016; Nisbet & Shaw, 2019; Tosuncuoglu, 2018). With the current trends, conducting assessments has become a critical issue to be addressed in broader contexts such as online or distance learning.

Information Communication Technology (ICT) in Education

The notable trends in education technology have significantly influenced teaching and learning. Technology in the classroom serves an instructional function aligned with the course's learning objectives, and it should be employed early and frequently during the semester (Light, 2011). Moreover, technology has created a learning environment where students can rehearse, record, review, and receive feedback from peers online on learning materials such as presentations (Christine et al., 2009). Thus, technology enables a virtual learning environment where students interact with their teachers and friends.

According to Sekaran et al. (2020), ICT tools are the latest technology or gadgets, for instance, the flipped classroom and mobile applications utilized in learning. Further, Hashim et al. (2018) discovered that mobile learning applications assist learners in experiencing English in the current world. Furthermore, ICT improves learning by engaging in a multimedia context corresponding to students' learning styles (Shin & Yunus, 2021). Moreover, technological advancements, combined with changing preferences in how learners interact with their studies, have resulted in higher growth of online learning (Akimov & Malin, 2020). Therefore, it has been portrayed that the ways teaching and learning take place would constantly evolve according to technology growth.

Speaking Assessment in Language Classroom

Much research in the broader literature has examined the importance of speaking assessment in English Language Teaching (ELT) and other assessment types (Akimov & Malin, 2020; Ariyanti, 2016; Boonkit, 2010). Language testers consider speaking the most difficult of the four speaking abilities to assess because it necessitates observing in-person oral performance or recording the performance for later evaluation (Ginther, 2012). Further, the performance can be categorized into some types of speaking; imitative, intensive, responsive, interactive, and extensive (Brown, 2003). In this study, students were exposed to extensive speaking in

which the students performed monologs such as oral presentations and narrating stories. Therefore, the success of oral performance would be based on the clarity of the assessment procedures, focus on the purpose of the assessment, eliciting quality of oral production, and creation of a consistent scoring rubric (Brown, 2003). Thus, there are many aspects to conducting the speaking assessment.

In a similar study, Ounis (2017) explored how EFL students were assessed when they spoke. The results indicated that the twenty instructors' oral language assessment procedures were authentic, structured, and attentive within the higher education context in Tunisia. The study also discussed how assessment methods enabled learners to maintain and improve their speaking skills (Ounis, 2017). Additionally, according to a recent survey by Akimov and Malin (2020), the oral examination could potentially solve obstacles to online learning. They also stressed the significance of meticulous planning to guarantee that assessment principles such as validity, reliability, and fairness were implemented. Finally, future studies were suggested to involve a more significant number of participants as the research sample.

Using Flipgrid for Speaking Purposes

There have been numerous studies to investigate the use of Flipgrid for English communication (Difilippantonio-Pen, 2020; Edwards & Lane, 2021), especially in distance learning (Agan et al., 2019), oral presentation (Miskam et al., 2019), community discussion (Johnson & Skarphol, 2018; Keiper et al., 2020; Milliken et al., n.d.), overcoming speaking anxiety (Tuyet & Khang, 2020), and oral assessment (Akimov & Malin, 2020; Nakatsuhara et al., 2017; Nova, 2020). Furthermore, Flipgrid has been implemented as among the most popular and frequently utilized ICT applications in education institutions in Japan (Edwards & Lane, 2021; Innes, 2020; Petersen et al., 2020), South Korea (McLain, 2018), US (Keiper et al., 2020), UK (Stoszkowski et al., 2020), Malaysia (Miskam et al., 2019; Shin & Yunus, 2021), Vietnam (Tuyet & Khang, 2020), and Indonesia (Syahrizal & Pamungkas, 2021). Thus, Flipgrid has been widely used and investigated in various contexts.

Flipgrid has been described by several recent research based on its circumstances. It is an online video discussion forum that encourages students and promotes social engagement (Stoszkowski et al., 2020). Professor Charles Miller of the University of Minnesota created Flipgrid in 2014 (Grayson, 2018), a video and audio-based classroom tool (Bartlett, 2018). Moreover, Flipgrid can be explored as an online video-based learning tool for various purposes, including discussions, reflections, presentations, and field-based learning (Keiper et al., 2020). Flipgrid is a helpful tool for speaking exercises. It can assist EFL learners in minimizing anxiety and gaining confidence in learning to speak English using artificial intelligence (AI) (Mango, 2019, as cited in Tuyet & Khang, 2020). Thus, it can be learned that Flipgrid enables users to interact using its platform.

Moreover, Flipgrid uses asynchronous videos that learners record themselves, giving them plenty of time to practice speaking without the pressure of needing to respond right away (McLain, 2018). It is an easy-to-use online video recording tool that allows instructors to construct and arrange discussion topics into grids like bulletin boards (Flipgrid, 2021). A study by Edwards and Lane (2021) recruited 189 first-year Japanese university students and revealed that Flipgrid could provide an effective platform for interaction and communication in a digital environment. This result has shown the benefits of integrating Flipgrid into the classroom.

The literature presents only a fragment of information about teachers' and students' experiences with Flipgrid in the classroom. In particular, no study has considered exploring teachers' and students' perceptions of using Flipgrid in assessing speaking skills. Therefore, this study aimed to investigate teachers' and students' perceptions and experiences using Flipgrid for speaking assessment, specifically during online learning. The following research questions guiding this study focus on:

1. What are teachers' perceptions of using Flipgrid in assessing students' speaking skills?
2. What are students' perceptions of using Flipgrid in assessing their speaking skills?
3. How are teachers' experiences using Flipgrid in their classroom?
4. How are students' experiences using Flipgrid in their classroom?

Methodology

This study employed an explanatory sequential mixed-methods design. The study was dedicated to providing the fullest understanding of the research topics by combining quantitative and qualitative data (Creswell & Creswell, 2018; Hamied, 2017)). After conducting a quantitative approach, the researcher used the qualitative method to report the findings (Leavy, 2017). The goal of incorporating quantitative data (closed-ended questionnaire questions) and qualitative data (open-ended questionnaire questions and interviews) into this study was to give the researcher a complete picture of teachers' and students' perceptions of utilizing Flipgrid for their speaking assessment.

Setting and Participants

The setting of the present study was Indonesia; specifically, the investigation was conducted at secondary and tertiary levels of education. English teachers and English learners were recruited for the study to explore their perceptions and experiences of using Flipgrid in their classrooms. However, with the current pandemic condition, criteria sampling was employed to comprehensively select the participants to explore the subject. The criteria were: (a) English teachers and English learners, and (b) they had experience using Flipgrid in their English classes. In addition, the participants were invited to participate in an online survey questionnaire anonymously. Table 1 shows the teachers' demographic profiles, and table 2 presents the students who participated in this study.

Participants in the first data collection were 24 English teachers (8 male teachers and 16 female teachers). Their age range varied from 24 years old to 57 years old.

Characteristics	Categorization	Percentage (%)
Gender	Male	33,3
	Female	66,7
Age (years old)	24-33	37,5
	34-43	29,17
	44-53	29,17
	>53	4,17
Teaching experience (years)	1-5	25
	6-10	16,7
	11-15	12,5
	16-20	25
	>21	20,8
Using Flipgrid experience (years)	<1	54,2
	1	20,8
	2	12,5
	3	8,3
	>3	4,2

Table 1. Teachers' Demographic Profiles

An online survey questionnaire was also distributed among the English students to understand their experience using Flipgrid in assessing their speaking skills. One hundred thirteen students (67 female and 46 male students) were voluntarily recruited for this study. Their age ranged from 13 to 25 years old.

Characteristics	Categorization	Percentage (%)
Gender	Male	40,7
	Female	59,3
Age (years old)	13-15	32,7
	16-18	13,3
	19-22	29,17
	>23	0,89
Education level	Junior high school	61,9
	Senior high school	32,7
	University students	5,3

Table 2. Students' Demographic Profiles

Instruments

This study employed different types of instruments to get an in-depth understanding. First, a closed-ended questionnaire using a 4-Likert scale (4=Strongly Agree, 3=Agree, 2=Disagree, 1=Strongly Disagree) and an open-ended questionnaire were shared. There were eleven close-ended questions, four open-ended questions for teachers, sixteen close-ended questions, and four open-ended questions for students. The questionnaires were developed based on previous studies related to Flipgrid (Innes, 2020; Keiper et al., 2020; Latipah & Purnawarman, 2019; Lowenthal & Moore, 2020; Mango, 2019; Petersen et al., 2020). Additionally, the questionnaire items were presented both in English and Indonesian. Before

being distributed, the questionnaires were checked by an ICT expert. Some modifications were made after receiving the feedback. Then, the questionnaire was piloted on five English teachers and ten English students and revised accordingly. The second data were from semi-structured interviews (adapted from Miskam et al., 2019; Ounis, 2017). There were eight interview questions for the teachers and six for the students. The interview questions followed the questionnaire themes.

Findings

The outcomes of this study provide perspective into how English teachers and students express their perceptions of using Flipgrid in their classes. Furthermore, the study reviews the experience of the targeted participants during the speaking assessment as the focus of the investigation. Finally, questionnaires and interviews were used to reveal the findings.

Teachers' Perceptions and Experiences of Using Flipgrid

To answer the research questions related to teachers' perceptions and experiences of using Flipgrid for assessing speaking skills, both quantitative and qualitative data were collected and analyzed.

Quantitative data

The quantitative data explored teachers' perceptions of using Flipgrid in their English classes. The questionnaires distributed to the targeted English teachers were examined. Twenty teachers participated in answering the questions. The close-ended type of questions was analyzed using descriptive statistics. Four major themes were explored from the 11 items asked of the participants. The first one was about the usability and functionality of Flipgrid. Statements number 1 to 4 were listed under this category. The result of the questionnaire responses is illustrated in Table 3.

	Theme and Statements	Percentage (%)				Mean	SD
		SA	A	D	SD		
T1.	**The usability and functionality of Flipgrid**						
S1.	It is easy to create an account on Flipgrid.	50	50	0	0	3,5	0,511
S2.	It is easy to use the features in Flipgrid.	42	58	0	0	3,42	0,504
S3.	Flipgrid could be used either from a PC or smartphone for speaking activities.	58	42	0	0	3,58	0,504
S4.	The Flipgrid display of the video, rubric score and teachers' comments visible on the device display is user-friendly.	37	63	0	0	3,38	0,495

Table 3. Items related to the Usability and Functionality of Flipgrid

All teachers agreed and strongly agreed that it was easy to create an account (M=3,5) and to use the features of Flipgrid (M=3,42). Moreover, 58 % of teachers strongly agreed that they could access Flipgrid from their PC or smartphones, while 42 % were optimistic about this accessibility. Additionally, 15 out of 24 teachers agreed, and the rest strongly agreed that

features in Flipgrid, for instance, the video display, rubric score, and teachers' comments, were user-friendly. From these findings, it can be concluded that teachers perceived Flipgrid as an accessible tool with many helpful features to be used in their teaching.

The second theme was about the interaction between teachers-students and students-students. Statements 5 to 7 were to explore teachers' perceptions of the interaction formed during the implementation of Flipgrid in their classrooms. Most teachers agreed that Flipgrid helped them interact and learn about their students (M=3,21). In addition, a feature of video replay in Flipgrid to discuss the given topic was perceived positively by 20 teachers.

	Theme and Statements	Percentage (%)				Mean	SD
		SA	A	D	SD		
T2.	**Interaction in Flipgrid**						
S5.	Flipgrid helps the teachers interact with the students.	33	54	13	0	3,21	0,658
S6.	Flipgrid helps teachers to learn more about the students.	37,5	54	37,5	0	3,29	0,642
S7.	The video replies feature a suitable way to discuss a topic by asking and answering questions and making comments.	42	42	16	0	3,25	0,737

Table 4 Items related to the Interaction in Flipgrid

The rest of the question items fell under the category of speaking assessment. Only 16% of the teachers reported not having the scoring instrument, while 84% confirmed the rubric was critical. Additionally, most respondents agreed that informing the students of the speaking assessment criteria and feedback was necessary.

	Theme and Statements	Percentage (%)				Mean	SD
		SA	A	D	SD		
T3.	**Speaking Assessment using Flipgrid**						
S8.	The scoring rubric should be provided to assess students' performance on Flipgrid.	37,5	45,8	16,7	0	3,21	0,721
S9.	The students should be informed of the speaking assessment criteria on Flipgrid.	45,8	45,8	8,3	0	3,38	0,647
S10.	The speaking assessment on Flipgrid is based on the lesson plan.	45,8	50,0	4,2	0	3,42	0,584
S11.	Teachers give the students review and feedback on their speaking performance on Flipgrid.	50	45,8	4,2	0	3,46	0,588

Table 5 Items related to Speaking Assessment using Flipgrid

Qualitative data

The qualitative data were collected from the four open-ended questions from the questionnaire and semi-structured interviews with five teachers. Moreover, the overall impressions of Flipgrid were studied to understand the teacher's perception and experiences

of using Flipgrid for the speaking assessment. Table 6 shows four questions in which the teachers could share their thoughts.

Theme and Statements
T4.   Overall Experiences of Using Flipgrid
S12.   What do you like about Flipgrid?
S13.   What do you dislike about Flipgrid?
S14.   What challenges do you face when using Flipgrid?
S15.   What improvements do you want to see in Flipgrid?

Table 6 Items related to Overall Experiences of Using Flipgrid

The analysis found evidence of the reasons why teachers like Flipgrid. Some of the answers mentioned that Flipgrid was suitable as alternative media for speaking practice, students could interact with each other, it was easy to use and integrated with Learning Management Systems (LMS), the features such as active or hidden video, the animation, and topic resources were interactive, innovative and engaging.

On the other hand, few teachers stated why they disliked Flipgrid. The argument was that the audio output from uploaded videos was sometimes altered into chipmunk-like. Moreover, teachers needed to rely on extensive and robust internet connection data. The recent change of public features was another point that gave a negative impression of Flipgrid. Additionally, explaining the instructions and familiarizing the students with the application took some time. This finding leads to suggestions that Flipgrid improvement was considerable.

It was worth discussing these exciting facts about some improvements expected from Flipgrid. The findings revealed that the teachers urgently requested caption or audio transcription, video tutorials for beginner learners, differentiation of the practice and test mode, group speaking activities, and more updated features. Having had their first hands-experience of using Flipgrid, teachers' aspirations could help develop and explore more parts of Flipgrid.

After responding to the questionnaire, six teachers were purposely selected for semi-structured interviews; however, only five responded to the interview invitation. The interviewed teachers had at least three years of teaching experience, used Flipgrid for at least one year, and had an academic background as English teachers. The demographic variables of the five interviewees are presented in table 7.

Interviewee	Age (year)	Gender	Education Level	The level of students currently taught	Teaching Experience (year)	Using Flipgrid (year)
Teacher 1	48	Male	Bachelor	High School	25	1
Teacher 2	40	Male	Bachelor	Middle School	17	2
Teacher 3	34	Female	Bachelor	Middle School	11	2
Teacher 4	38	Female	Master	Higher Education	15	4
Teacher 5	26	Male	Bachelor	Middle School	3	3

Table 7 Interviewees' Profile (Teachers)

From the data presented in table 2, it can be seen that the characteristics of the interviewees are categorized based on age, gender, education level, level of students currently taught, teaching experience, and Flipgrid experience. Interviewees' age ranges from 26 to 48 years old, with teaching experience from 3 to 25 years. One female and two male teachers taught in middle school, one male teacher taught in high school, and one female teacher taught undergraduate students. Most of the participants for the interview have experience using Flipgrid for more than a year.

The interview questions centre on the objectives and constraints of assessing speaking skills, the perceptions and benefits of Flipgrid, and some enhancements that Flipgrid has to make. The interviews also sought to learn about students' perceptions of Flipgrid as their teachers observed. The findings were classified into four themes under the framework of Brown (2003). They were a) objectives of the speaking assessment, b) challenges of conducting the speaking assessment, c) benefits of Flipgrid d) Flipgrid improvements. Following discussed the results of the interview.

a) Objectives of speaking assessment

All teachers were aware of their goals in the speaking assessment. The reason was mainly to measure students' ability to communicate in English. Besides, there were other factors that the teachers wanted to see from their students. Those include expressions, pronunciation, intonation, confidence, fluency, and accuracy. Additionally, the teachers believed that other English skills, such as vocabulary and grammar, were reflected during their oral performance. The following excerpt illustrates the finding.

> *Teaching speaking is about expressions, pronunciation, and intonation. Students are expected to know the phrases and how to use them appropriately so they will support students' fluency. (Teacher 1).*

> *The main goal of assessing my students' speaking skills is to ensure they can communicate using the target language. This is crucial as it measures the success of learning a language. When the students actively participated in the class using English, they comprehended the essence of English learning. (Teacher 3)*

> *It depends. Do we assess accuracy or fluency, or confidence? (Teacher 4)*

It can be seen that the teachers understood the objectives of conducting the assessment, especially in speaking. According to Malone (2013), a thorough understanding of performing assessments can give teachers and other stakeholders valuable information regarding students' performance and the amount to which learning goals are achieved. Thus, in this study, the teachers could see their students' performance and achievement in speaking by performing the speaking assessment.

b) Challenges of conducting the speaking assessment

The teachers reported some difficulties in performing the speaking assessment. First, it was challenging for the teachers to select appropriate instruments and measure aspects. The excerpt below shows the problems faced by the teacher.

> *I encountered difficulty in assessing assessment speaking when determining the aspects to be evaluated. I have so many speaking assessment methods, but I am still unsure which measuring instrument is appropriate for the circumstances of the students I teach (Teacher 2).*

Additionally, one of the teachers mentioned barriers to allocated time for speaking activities. She stated that assessing students' speaking abilities took a longer time. Besides, the students had limited time to practice their speaking intensively.

> *It was time-consuming to conduct. Also, there is a lack of time for the students to practice intensively. (Teacher 4)*

Furthermore, the teacher mentioned the challenges experienced by the students due to their shyness and the feeling of being afraid of making mistakes. It has become one of the drawbacks of encouraging students to speak English. The following excerpt describes the argument.

> *The crucial drawbacks of stimulating them to talk in English are the willingness to produce English in class. I might say that shyness and feeling afraid of making mistakes are the factors that contribute to the desire to speak English in class. (Teacher 3)*

Thus, it can be understood that the barriers to conducting speaking assessments appeared from the teachers' and students' sides. The teachers stated that their problems were related to the practice and assessment time allocation. Moreover, they also had difficulty selecting an appropriate instrument to assess their students' speaking ability. On the other hand, the teachers believed that their students were afraid of making mistakes during their speaking performances. The students remained silent or ended their conversation quickly without further effort.

c) Benefits of Flipgrid

In the interviews, the teachers reported many benefits of using Flipgrid in their classrooms. For example, one of the teachers described that their students had been excited with the visual, audio, and video features in Flipgrid that they could explore. Another teacher mentioned Flipgrid as a user-friendly tool.

> *I agree that Flipgrid is one helpful tool to assess speaking skills. It has got minimum features for the students, which are also user-friendly. (Teacher 5)*

During online learning, Flipgrid has become the best option for solving problems encountered by teachers. It helped the students practice their speaking independently. Moreover, Flipgrid also engaged the students beyond their video-teleconferencing class. Hence, teachers' perception of the use of Flipgrid has been affirmative. Flipgrid has been a handful of tools for teachers in assessing speaking skills. One of the teachers expressed that her job has become easier since she started using Flipgrid.

> *Flipgrid eases my job when assessing students' speeches. I do not need to download anything. As long as I have a good internet connection, I am good to go. (Teacher 4)*

The teacher also described that through Flipgrid, he could assess students' speaking performances in various ways. These include presentations, debates, conversations, video blogs, etc. Besides, the teachers can access Flipgrid from anywhere and anytime as it is a cloud-based internet service.

> *With Flipgrid, we can assess students' speaking performances in various ways. Conversations, presentations, podcasts, video blogs, and debates are possible through Flipgrid. Since Flipgrid is a cloud-based service, we can access it anytime and anywhere. (Teacher 1)*

Moreover, Flipgrid has scoring features to help teachers measure students' performances. The teachers could also observe their students' abilities in detail as Flipgrid facilitates the "repeat" feature. Thus, it has been easier to give feedback to the students on their progress.

> *With the features that helped teachers directly score their speaking, it was easier for me to assess them and give feedback in a row. (Teacher 3)*

> *The teachers can repeatedly listen to the students for the part they don't understand. (Teacher 5)*

For the student's benefit, the teachers believed that Flipgrid assisted them in overcoming the students' fear of speaking in front of the class. Furthermore, the students were more expressive and confident. Besides, the students could interact with their classmates and the teacher using the platform.

> *Students are not afraid or shy when performing their speeches. They can be more expressive when talking to Flipgrid instead of speaking in front of the class or the teacher. (Teacher 4)*

The advantages of using Flipgrid to assess speaking discussed above strengthen previous research findings (Edwards & Lane, 2021; Lowenthal & Moore, 2020; Tuyet & Khang, 2020). Flipgrid has improved students' performance during language learning, significantly enhancing their speaking ability. Further, Flipgrid has helped teachers assess their student's progress and achievement using its features. Most importantly, both teachers and students have used this user-friendly tool.

d) Flipgrid improvements

Flipgrid has been proven to support language teaching and learning. Both teachers and the students agree that Flipgrid could expose the students to more engaging activities. From the interviews, the teachers were happy with their experience and would like to continue to use Flipgrid in the future. It was a challenge for them to get familiar with the tools initially. The interviews showed some improvements that the teachers expected to maximize the features of Flipgrid. First, most teachers agreed that to access Flipgrid, they needed a stable internet connection. They were hoping that Flipgrid could accommodate friendlier internet data to access it.

Students' Perceptions and Experiences of Using Flipgrid

Quantitative data

The questionnaires delivered to the English learners voluntarily involved in this study were analyzed. One hundred thirteen participants from various education levels (junior high school to university students) responded to 16 items of close-ended and four open-ended questions. Descriptive statistics were used to summarize the closed-ended questions.

Items 1 to 4 in the questionnaires cover the usability and functionality of Flipgrid. 92% of students responded positively that it was easy to register on the Flipgrid website and 87% of them also said that the features of Flipgrid were uncomplicated. Most students (M=3.5) stated they could access Flipgrid through their smartphones or computers. Although 14 % of respondents disagreed with the statements of Flipgrid features, for instance, the video display, the scoring rubrics, and the comments were user-friendly. Therefore, it could still be understood that almost all students found them accessible.

	Theme and Statements	Percentage (%)				Mean	SD
		SA	A	D	SD		
T1.	**The usability and functionality of Flipgrid**						
S1.	It is easy to create an account on Flipgrid.	42,5	49,6	7,1	0,9	3,34	0,649
S2.	It is easy to use the features in Flipgrid.	29,2	57,5	12,4	0,9	3,15	0,658
S3.	Flipgrid could be used either from a PC or smartphone for speaking activities.	43,3	42,5	10,6	3,5	3,26	0,788
S4.	The Flipgrid display of the video, rubric score and teachers' comments visible on the device display is user-friendly.	32,7	54,0	11,5	1,8	3,18	0,697

Table 8 Items related to the Usability and Functionality of Flipgrid

The interaction accommodated in Flipgrid was investigated from questions 5 to 7. The students (87%) agreed and strongly agreed that Flipgrid enabled them to interact with teachers. Additionally, 76% thought Flipgrid helped them learn about their classmates and teachers. Most importantly, through the feature of video replay, students could ask, answer, or give comments on the discussed topics (N=85).

Theme and Statements	Percentage (%)				Mean	SD
	SA	A	D	SD		
T2. **Interaction in Flipgrid**						
S5. Flipgrid helps the teachers interact with the students.	31,0	51,3	16,8	0,9	3,12	0,709
S6. Flipgrid helps the students to learn more about the other students and the teacher.	25,7	50,4	18,6	5,3	2,96	0,812
S7. The video replies feature a suitable way to discuss a topic by asking and answering questions and making comments.	25,7	51,3	18,6	4,4	2,98	0,79

Table 9 Items related to the Interaction in Flipgrid

Next, students' perceptions of Flipgrid during speaking activities were elaborated on in questions 8 to 11. Most students (88,5%) described Flipgrid increased English-speaking time because the tasks could be completed asynchronously from home. Also, through Flipgrid, the students admitted that their confidence and speaking skills had improved (N=65). On top of that, the materials and lessons in Flipgrid were exciting (M=2,81).

Theme and Statements	Percentage (%)				Mean	SD
	SA	A	D	SD		
T3. **Speaking Activities using Flipgrid**						
S8. Flipgrid increases the English-speaking time because the tasks can be done asynchronously from home.	40,7	47,8	9,7	1,8	3,27	0,71
S9. My English-speaking confidence is improving because of Flipgrid.	18,6	47,8	30,1	3,5	2,81	0,774
S10. Flipgrid helps to improve my speaking skills.	26,5	50,4	20,4	2,7	3,01	0,762
S11. The materials and lessons in Flipgrid are exciting for developing my speaking skills.	28,3	51,3	17,7	2,7	3,05	0,754

Table 10 Items related to the Speaking Activities using Flipgrid

The rest of the question items discussed the speaking assessment conducted using Flipgrid. Both teachers and students were believed to give valuable feedback on students' performance (80%). Moreover, the students experienced enough time to practice before uploading the video (N=100). Only 14% of students chose to give a speech in front of the class, while 86% preferred to show their video speech through Flipgrid. More than half of the students thought Flipgrid was better than other speaking assessment tasks (79%). The following is an illustration of the results of the students' questionnaire responses:

Theme and Statements	Percentage (%)				Mean	SD
	SA	A	D	SD		
T4. **Speaking Assessment using Flipgrid**						
S12. The feedback comments by the teacher are useful.	37,2	57,5	4,4	0,9	3,31	0,599
S13. I think my friends give me useful feedback about my performance.	16,8	62,8	15,9	4,4	2,92	0,709
S14. I have enough time to practice and check my video before uploading it to Flipgrid.	37,2	51,3	9,7	1,8	3,24	0,698
S15. I prefer to show my Flipgrid video online than give the same speech in front of the class.	51,3	34,5	11,5	2,7	3,35	0,788
S16. I think Flipgrid is better than other types of tasks for speaking assessment.	31,0	47,8	15,9	5,3	3,04	0,828

Table 11. Items related to Speaking Assessment using Flipgrid

Qualitative Data

Open-ended questions were employed to explore further the whole experience of using Flipgrid. The students described why they enjoyed using Flipgrid, especially during distance learning. Most of them explained that Flipgrid had many customization options that were simple and interactive. Furthermore, it alleviated students' anxiety about practicing their English and assisted in developing their speaking skills.

On the contrary, the students acknowledged their dissatisfaction with Flipgrid in their responses to the survey. Many students raised concerns about the time constraint allotted by Flipgrid to record the video. Furthermore, website slowness and the failure to reload the page affected their motivation to explore the application. Further, the audio occasionally sounded Chipmunk-like and had inadequate video quality. The displeasure mentioned addressed some challenges the students faced in their learning. Dominance's arguments described that internet connection was the main problem that interrupted their experience using Flipgrid. Some minor explanations included students' confidence, capability to edit video, and inability to understand the functions of novice users.

Theme and Statements
T5. **Overall Experiences of Using Flipgrid**
S17. What do you like about Flipgrid?
S18. What do you dislike about Flipgrid?
S19. What challenges do you face when using Flipgrid?
S20. What improvements do you want to see in Flipgrid?

Table 12 Items related to the Overall Experiences of Using Flipgrid

One hundred thirteen students participated in filling out the questionnaire. However, only 18 students agreed to be invited for the interview. Therefore, six students were selected randomly to be interviewed. They were asked to get comprehensive details about their perception of Flipgrid. The demographic information of the six students is presented as follows.

Interviewee	Age (year)	Gender	Education Level	Frequency of Using Flipgrid
Student 1	19	Female	Undergrad	Every week
Student 2	14	Female	JHS	Not too often
Student 3	15	Male	JHS	Quite often
Student 4	15	Male	JHS	Not too often
Student 5	21	Female	Undergrad	One semester
Student 6	14	Female	JHS	Sometimes

Table 13. *Interviewees' Profile (Students)*

From the table, it can be seen that their age ranges from 14 to 21 years old. Mostly, they were junior high school students. Their frequency of using Flipgrid varied from not too often to every week. Similar to the discussion above about teachers' perception, the students' interviews aimed to explore students' perception of Flipgrid, especially in assessing their speaking skills.

The discussions were classified into four themes. They were a) perception of speaking assessment, b) objectives of using Flipgrid, b) challenges of using Flipgrid, c) benefits of using Flipgrid d) Flipgrid improvements. Following discussed the results of the interview from the students' perspectives.

a) Perception of speaking assessment

From the interviews, it was found that the students recognized some speaking activities that they had done in the classroom for assessment. Most of the students described asking and responding to the questions from the teachers were part of the assessment. They believed that the teachers measured their speaking ability anytime they answered the questions orally. The following excerpts illustrate the discussion:

> *Asking and answering questions from teachers and during the presentation (Student 2)*

> *When the teacher pointed directly and asked the students to speak directly (Student 3)*

> *The teacher usually immediately asks the students to answer using English, through voice notes, or collect videos via WhatsApp/google classroom (Student 6)*

Moreover, the students were also familiar with some types of measurement that the teachers in their English class used. The most common activities used by the teachers to see their students' progress in learning were by conducting quizzes or speaking games. Besides, the students were also asked to perform in spelling bee and storytelling. Additionally, the

students experienced audio recording using a recording tool or zoom application as part of their speaking assessment. Some samples of students' perspectives are presented below:

Zoom meeting recording and the conventional way to record a video (Student 4)

Learning via social account, storytelling, spelling bee, and voice note (Student 1)

In short, the students have perceived speaking assessments as activities conducted to see their capability in English orally. Therefore, the teachers have done many ways to allow the students to show their fluency. These include direct interaction, recorded voice, presentation, and many other activities.

b) Objectives of using Flipgrid

Having had the experience of using Flipgrid during their English learning, the students agreed that Flipgrid was a valuable tool to support their English skills. In addition, through some features built-in Flipgrid, the students were trained to practice their speaking skills. The following excerpts describe some objectives of using Flipgrid from students' points of view.

… because Flipgrid is an application designed to give students a fun and creative way to develop video assignments given by the teacher (Student 4)

Flipgrid is more helpful in pronunciation skills and also for good and correct English (Student 1)

It can be learned that the students understood that Flipgrid was incorporated into their lesson to enhance their speaking skills. Moreover, the students also perceived Flipgrid as a fun instrument that facilitates creativity while learning English correctly.

c) Challenges of using Flipgrid

From the findings, it was found that the teachers informed the students about the features of Flipgrid. Thus, they have become familiar with the functions and how it works. The majority described Flipgrid as an easy tool to use. Although, the problem with the internet connection was mentioned, which interfered with using Flipgrid. The discussions are listed below:

It is effortless to use (Student 3)

It is pretty easy to use (Student 5)

Sometimes, I have trouble with the wrong signal (Student 6)

It can be inferred that Flipgrid has been very supportive and accommodating during the learning. It facilitates the students with easy-to-use features. Despite its dependency on a reliable internet connection, Flipgrid is an educational tool that enables room for students and teachers to interact.

d) Benefits of using Flipgrid

With all the built-in technology equipped in Flipgrid, the students and the teachers have created and shared videos and interact virtually. Significantly, the students claimed that after practicing using Flipgrid, their confidence in speaking improved. They were not afraid of talking in front of people and being judged for their English fluency. The findings are presented in the following excerpts:

> *I have become more confident in speaking English (Students 2 and 4)*

> *Students become more confident in learning English and practice their ability to speak English (Student 6).*

Additionally, the students claimed that they became more creative in completing the assignments. They could create a video and modify it with the elements in Flipgrid. The students felt challenged but excited to produce their speaking content while presenting it creatively. The following excerpt shows the findings:

> *I think it allows the students to be creative about their speaking content and how they would set and serve the assignment using relevant elements (Student 5).*

Most importantly, the students thought that their speaking skills were improved. They had the opportunity to practice, record, and publish their video presentation and received feedback from their classmates and teachers without fear of being judged.

> *I can practice articulation when speaking and practice self-confidence (Student 3).*

Besides, all the students argued that they would use Flipgrid in the future. Most of the reasons were because Flipgrid was fun and easy to use. They could also learn about the use of technology and exciting topics. It can be concluded that the students received benefits from incorporating Flipgrid in their English classrooms.

Discussion

The main conclusion drawn from the present study is that teachers and students have been affirmative about using Flipgrid in the classroom (Keiper et al., 2020; Shin & Yunus, 2021; Tuyet & Khang, 2020). Most teachers and students agree that Flipgrid has practical functions and is uncomplicated to understand and use the surveys. This result is similar to the finding of a study conducted by Carr and Kruggel (2020), Edwards and Lane (2021, and Lowenthal and Moore (2020). The application is also compatible with the current gadgets, such as laptops and smartphones, that teachers and students use to learn (Syahrizal & Pamungkas, 2021).

Moreover, the study reveals an important finding in understanding students' anxiety levels in speaking. Giving presentations through Flipgrid in online learning makes the students feel more comfortable than presenting them in front of the class in a traditional classroom setting. This result was also found in several previous studies (Shin & Yunus, 2021; Tuyet & Khang, 2020; Yalçın & İnceçay, 2014). The students also think Flipgrid helps improve their confidence in performing speaking tasks. A study by Shin and Yunus (2021) describes the same finding.

In addition, these findings provide additional information about the integration of feedback from classmates. The feature in Flipgrid enables the students to comment on their friends" videos. Thus peer feedback has increased accordingly (Miskam et al., 2019). Importantly, our results provide evidence for students' reflection on their learning. The students can rehearse, record, review, and retake the video before submitting the final version that they are confident about. In their study, Miller et al. (2020) also urge the significance of Flipgrid for students' reflection.

An apparent limitation of the study is that despite its positive evaluations, the participants experienced some challenges using Flipgrid. These include technical issues such as internet connection, webpage loading, and low-quality video and audio. These problems resulted in a limited exploration of the benefits of Flipgrid. Moreover, the teachers and students involved in this study come from various backgrounds, although each category's representation is considered low. Finally, it is essential to note that the present evidence relies on teachers' and students' access to proper internet connections and other learning facilities.

Conclusion and Recommendation

Future research will be essential to investigate the significance of the study to a certain education level, for instance, secondary, tertiary, or higher education level, to address the issues in the specific context. In addition, future research could explore test developers, test-takers, curriculum developers, and policymakers' perceptions of using Flipgrid for assessment. Comprehensive teacher training is strongly suggested before applying Flipgrid in the classroom to maximize its features. Moreover, the students are strongly urged to be provided with clear instructions and assistantship during their early exercises.

Acknowledgement

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A Proposed Framework for Sustainable and Impactful Higher Education Institutions

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Abstract

High-quality education is necessary to create a more sustainable world. Higher Education Institutions (HEI) significantly influence future global leaders. Sustainable development has become even more important as the environmental impact on individuals and organizations has become a growing issue. A sustainability framework is a road map that outlines the paths of transformation appropriate for the given context and expresses the strategic direction of an institution. The research aims to: (1) define sustainability by reflecting the institution's and its stakeholders' cultures and values; (2) suggest possible programs universities can implement to ensure its sustainability; and (3) establish indicators for assessing the performance of an HEI focusing on sustainable development. A mixed methodology study following a sequential explanatory design strategy was conducted in one of the HEI in Manila, Philippines. The researchers first devised a survey to collect and analyze quantitative data. Qualitative data were then gathered and assessed through a focus group discussion, further clarifying the quantitative results. The research results show that an HEI significantly influences the management, engagement, and development of strategies for sustainable development issues. Data treatment and analyses show that by aligning current university efforts and identifying strategic interventions, the HEI goals may further advance by understanding how change occurs and being a catalyst for sustainability.

Keywords: Social Impact, Sustainability, Higher Education

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1. Introduction

Growing concern about people and organizations' impact on the environment prompted an emphasis on sustainable development. In 1987, the United Nations' World Commission for Environment and Development, chaired by former Norwegian Prime Minister Gro Harlem Brundtland and known as the Brundtland Commission, released the study "Our Common Future," commonly known as the "Brundtland Report" (Brundtland, 1987). The report's release is regarded as a pivotal point in raising international awareness and debate on the relevance of global sustainable development. While development is required to meet human needs and increase the quality of life, it must be done without eroding the natural environment's capacity to meet current and future requirements, according to this definition.

Sustainable Development has gradually grown from an ambiguous definition to a global action with greater practical wisdom. From standard goals concentrating on ecological sustainability to Millennium development goals and United nations sustainable development goals today, the goal of sustainable development has become more inclusive and universal. There is still a lack of sustainability and a desire for short-term intra-generational equity. Furthermore, taking into account local cultural aspects, enhancing governance capacity, and focusing more on life support systems are all key components in promoting long-term growth (Shi et al., 2019).

Not only is the Philippines the world's tenth most populated country, but with over 30% of the population under the age of 15, it is expected to have the fastest rise in its university-aged population among ASEAN countries. With a 40% increase in higher education enrolments over the last ten years, demand for higher education is continuously increasing and is being supported by national policy (The Quality Assurance Agency for Higher Education, 2018). Whereas HEIs have been implementing Sustainable Development relatively extensively, their efforts have tended to be segmented and focused on internal processes. It is becoming increasingly important for HEIs to take a more holistic approach to their system aspects and impacts to increase their contribution to SD. Creating novel impact assessment methodologies and updating existing indicator-based Sustainability Assessment Tools (SATs) can aid HEIs in this attempt (Findler et al., 2018).

Sustainability reporting has also been upgraded as a requirement for HEIs to submit to various government agencies in order to ensure that organizations analyze their impacts on sustainability concerns and are transparent about the risks and possibilities they face. Only 32% of companies reported having sustainability governance in place in a recent study, which is unsurprising given that sustainability reporting is still relatively new in the country (Villacorte, 2021). Nevertheless, as sustainability challenges become more prominent in the development of corporate strategy, business leaders should consider appointing a member of management to lead the organization's sustainability efforts.

1.1   Research Questions

This research proposes a framework that serves as a roadmap that identifies contextually appropriate transformation routes while articulating a university's strategic direction. By mapping understanding of how change occurs, existing activities can be brought together and identifying strategic interventions would help the researchers get closer to the goals. This study aims to conduct a thorough evaluation of the available literature on higher education

impacts to establish an integrative perspective of HEIs' influence on sustainable development. This project seeks to answer the following questions:

1. How does a university define sustainability reflective of the institution's culture and values and its stakeholders?
2. What programs should a university employ to ensure its sustainability following the United Nations Sustainable Development Goals?
3. What indicators should be employed in the institution's performance evaluation to ensure that a higher education institution aligns with sustainable development goals?

It is right that universities will integrate sustainability into the institutions' mission and planning, curricula, research, student life, operations, and community outreach. This paper, concerning the issues mentioned above, will explain the importance of creating sustainable campuses. The study produced findings that are vital to all stakeholders in higher education i.e. students, university staff, faculty, administrators, and also to future researchers.

2. Sustainability Development in Higher Education

The Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity (*Sustainable Development Goals*, 2021).

HEIs are now regarded as "small cities" because of their substantial size, massive population, and complex undertakings on campuses which in turn have serious effects on the environment whether it be direct or indirect impacts (Alshuwaikhat & Abubakar, 2008). Therefore, there is no doubt about how much impact HEIs can make to pay it forward by involving themselves in the furtherance and implementation of sustainability.

Other campus sustainability initiatives specifically across USA and Canada have developed concepts that point out that faculty and staff are shown to be "intrapreneurs" of universities who work for social and ecological good from within large organizations (Brinkhurst et al., 2011). This then makes HEI Stakeholders possible counterparts of Corporate Social Responsibility (CSR) to what is now called University Social Responsibility (USR). The USR concept was adapted from CSR and changed the stakeholders from corporates to HEIs instead wherein people from the university such as the administrators, faculty members, and students engage with a chosen community like a cooperative company with its goal to help communities rather than for employee coordination or promotion (Malit & Tsai, 2020).

2.1 The United Nations Environment Programme Sustainable University Framework

Within the United Nations system, the United Nations Environment Programme (UNEP) coordinates responses to environmental challenges. The UNEP is the UN system's principal environmental authority. UNEP's expertise strengthens environmental standards and practices while also implementing environmental duties at the national, regional, and international levels. UNEP's objective is to lead and encourage collaboration in environmental protection by motivating, informing, and empowering nations and peoples to improve their quality of life without jeopardizing future generations' quality of life.

On July 8, 2021, the United Nations Environment Programme started a new project to define what it means to be a sustainable university and urged more universities to do so. Because of this, UNEP created the UNEP's Sustainable University Framework, which aims to define what it means to be a sustainable university and give out a roadmap on how to become one (Patton, 2021).

The framework shown in Figure 1 enables the university to develop its sustainable course that uses an empowering, collaborative, and global definition of what constitutes a sustainable institution and a framework to become one. The collective framework intends to coordinate, aggregate, and amplify the efforts of existing Higher Education sustainability tools. The framework takes a whole-institution approach to ensure that sustainability is integrated across all aspects of the organization, reflecting the holistic approach of the UN Sustainable Development Goals and most sustainability network accreditations. Recognizing the many different contexts and possibilities worldwide, the UN Sustainable University Framework embraces the common elements of existing Frameworks and assessment tools developed by existing universities.

Figure 1: UNEP Sustainable University Framework (Source: UNEP)

A university has four Core Areas using a quadruple bottom line strategy across the entire institution to include in its planning and activity. The UNEP provided some quick wins that universities may consider in each core area which are as follows.

- Teaching and Research - focuses on student engagement while they are still in the formative stage of their lives and utilize the curriculum for shaping them into sustainability-minded people.
- Environment and Climate - for determining outstanding climate impact for a university using the Carbon Management Hierarchy.
- People and Society - exerts efforts in initiating and implementing actions for a just, resilient, and sustainable communities.
- Administration and Governance - is a fundamental prerequisite that involves a strategic commitment to move forward to sustainability expected from all levels within the university.

To evaluate Teaching and Research, sustainability in curriculum, research, promotion & awareness, and student organization activities were asked during the survey and discussed in the focused group discussions.

Environment and climate were focused on determining status in terms of the use of water, protection of biodiversity, waste management, travel options, use of electricity, and adherence to building standards.

For People and Society, impact on community and society, supplier performance, purchase of goods & services, and partnership on sustainable initiatives were discussed.

Lastly, Administration and Governance helped to ascertain the promotion of social mobility, equality and collaboration at work, reward and recognition for leading sustainability initiatives and support the wellbeing of employees.

2.2 Commission on Higher Education Support on Sustainable Development Goals

The Commission on Higher Education (CHED) was established on May 18, 1994, when Republic Act No. 7722, also known as the Higher Education Act of 1994, was passed. CHED, an administratively affiliated agency to the Office of the President, is led by a chairperson and four commissioners, each of whom has a four-year tenure. In defining goals, policies, and strategies relating to higher education and the operation of CHED, the Commission En Banc acts as a collegial body.

The Commission is devoted to promoting excellence, relevant, and responsive HEI and programs, with the SDG on Education as the overarching framework, strategies, and principles aligned with Ambisyon 2040 (Commission on Higher Education, 2020). To ensure a highly employable and skilled Filipino workforce, the Commission will align with international standards, national priorities, and local needs.

According to Prospero De Vera, chairman of CHED, the increase in the number of Philippine universities helping to achieve the SDGs is a sign of HEIs' growing internationalization campaigns and their desire to compare themselves to and compete against the best universities in the world (Yang, 2022).

2.3 Global Metric for Sustainability Assessment

The Times Higher Education (THE) Impact Rankings are the only international performance tables that evaluate universities in relation to the Sustainable Development Goals established by the United Nations SDGs (Times Higher Education, 2022). More than 1406 universities now worldwide have received recognition for their efforts in addressing the most pressing global concerns through THE (2020) University Impact Rankings, which were launched in 2019 to quantify institutions' social and economic impact.

15 universities in the Philippines are included in the recently released Impact Ranking 2022. According to CHED (2020) figures as of 2020, excluding satellite campuses of state universities and colleges, there were 1,975 HEIs in the country. Only 1% of the Philippines' total HEI population measures their broader influence on society using indicators that have been rigorously calibrated to allow for thorough and fair comparisons across four major categories: research, stewardship, outreach, and teaching, on which THE is focusing. There

are even more universities around the globe that have the potential to contribute more to sustainable development, but they are not recognized in the Impact Rankings.

Of the 15 universities in the Philippines that made it in the list of HEI Impact ranking, the four Sustainable Development Goals (SDG) 4 Quality Education, SDG 5 Gender Equality, SDG 3 Good Health and Well-Being, and SDG 13 Peace, Justice, and Strong Institutions, are highlighted to have received the highest marks. The result of this research will show what are the top SDGs at the university being studied and whether they are the same as those at the other institutions stated in table 2 or whether they are distinct SDGs that the university being studied stakeholders consider being more critical.

There is a huge opportunity for more universities to be included in the ranking of Times Higher Education by reviewing and acknowledging the gaps in the planning and execution.

2.4 Conceptual Framework

Show in Figure 2 is the framework for acquiring the current status of sustainability efforts within a university and its stakeholders to come up with recommendations that would further efforts in pursuing long-term sustainability.
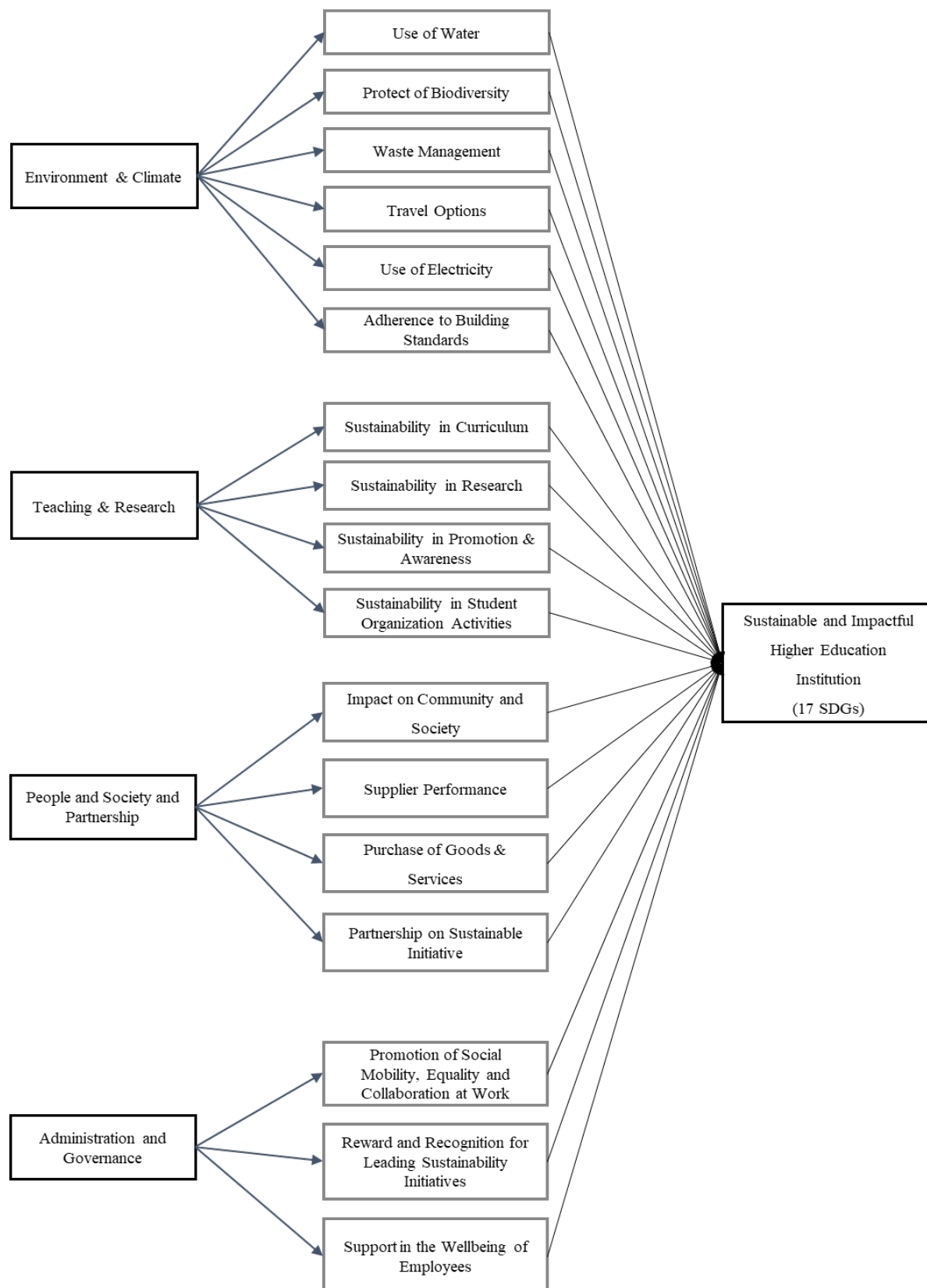
Figure 2: Conceptual Framework

3. Methods

The researchers chose to use mixed methods research following a sequential explanatory design approach as shown in Figure 3 (Creswell, Plano Clark, et al., 2003). The collection

and analysis of quantitative data is the foundation or the first phase of this design. The next step is to collect and analyze qualitative data after the first phase. The study's second qualitative phase planned to build on (or connect with) the findings of the first quantitative phase.

A mixed-method approach was used for this study using Survey and Focus Group Discussions (FGD) whose respondents all came from Adamson University. Data gathering took most of the time as it started with how questions should be formulated and composed in a way that will maximize the data to be extracted.
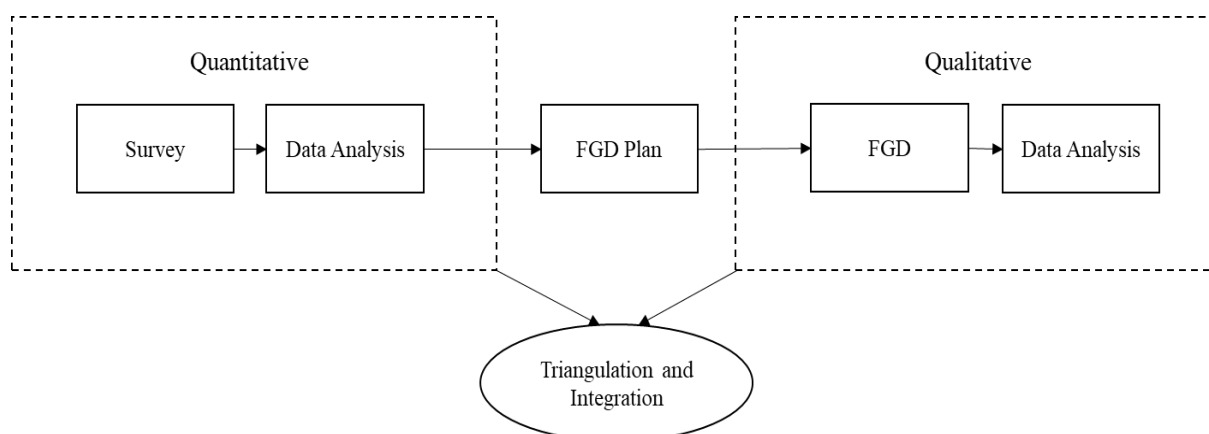
Figure 3: Sequential Explanatory Mixed Method

3.1 Survey

The survey was made in Typeform platform shown in Figure 3 composed of questions divided into 3 parts which are as follows:

- Personal Information (to easily identify the source of the response)
- Perception, Awareness, and Behavior on Sustainability (to determine current efforts and willingness for active participation)
- Other information (relevant questions that would garner more data)

The survey contains 35 questions that take not more than 15 minutes to answer. The survey instrument had undergone review by the Data Privacy Office of the university. A signed formal letter from the researcher was released through electronic email informing target respondents to access the survey link. The letter also provided reassurance to respondents that all data collected will be kept confidential and will not use the respondents' names in any report.

Survey questions were mainly determining the level of perception of each respondent and how willing they are to be involved with promulgating and applying sustainability. Since the institution has a population of 13,000 and 700 dates enrolled students and active employees respectively, a representative sample of 2,500 was the total number of initial target respondents. The survey link was distributed using the institution's e-learning platform, and institutional e-mails to ensure that only officially enrolled students and employees would be able to respond.

The Human Resources Department provided the population of employees upon request of the research team, and the population of college students was acquired from the university's Record Management System (RMS) based on enrollment records for the second semester of the school year 2021–2022. A total of 1830 were the verified respondents after examining the submissions. Excluded are duplicate submissions, incomplete submissions, and respondents not using official university email.

Stakeholders	Frequency	% to Subtotal	% to Total
Students			
1st Year	481	28.0	26.3
2nd Year	238	13.9	13.0
3rd Year	554	32.3	30.3
4th Year - 5th Year	442	25.8	24.2
Subtotal	1,715	100.0	93.7
Academic Employee			
Less than a year	2	3.3	0.1
1 year to less than 3 years	17	28.3	0.9
3 to 5 years	6	10.0	0.3
6 to 10 years	15	25.0	0.8
11 to 20 years	10	16.7	0.5
More than 20 years	10	16.7	0.5
Subtotal	60	100.0	3.3
Office Staff			
Less than a year	3	10.3	0.2
1 year to less than 3 years	8	27.6	0.4
3 to 5 years	3	10.3	0.2
6 to 10 years	3	10.3	0.2
11 to 20 years	3	10.3	0.2
More than 20 years	9	31.0	0.5
Subtotal	29	100.0	1.6
Administrators			
Less than a year	0	0.0	0.0
1 year to less than 3 years	1	3.8	0.1
3 to 5 years	0	0.0	0.0
6 to 10 years	6	23.1	0.3
11 to 20 years	7	26.9	0.4
More than 20 years	12	46.2	0.7
Subtotal	26	100.0	1.4
Total	**1,830**	**100.0**	**100.0**

Table 1: Demographic Profile of Survey Respondents

Table 1 shows that 94% of the survey respondents are students and 6% are employees from the university composed of faculty, office staff, and administrators. The number of students who took and completed the survey is 1715 where 481 comes from the first year, 238 from the 2nd year, 554 from the 3rd year, and 442 from the fourth and fifth years. The total number of employees who participated in the survey is 115 with 60 faculties, 29 office staff, and 26 administrators.

3.2 Focus Group Discussion

The Focus Group Discussions proceeds after the survey was conducted. This allows the authors to explore a qualitative research method that would encourage representatives from corresponding stakeholder groups to discuss in-depth issues regarding sustainability within the institution and at the same time be regulated by selected moderators.

Data gathered has been analyzed and interpreted by a matrix which will be used for the framework development. The framework development will then be finalized to come up with an HEI sustainability assessment tool that can be used not only by Adamson University but also by other HEIs.

The researchers obtain and analyze quantitative data initially in this design. The qualitative data is collected and evaluated in the second phase and used to explain or expand on the quantitative results gained in the first phase. This strategy justified that quantitative data and subsequent analysis provide a broad grasp of the research subject. The qualitative data and analysis clarify and explain the statistical results by delving deeper into the perspectives of the participants (Rossman & Wilson, 1985; Tashakkori & Teddlie, 1998; Creswell, 2003).
The researchers utilized a Participant Selection Model, one of the types of Explanatory Model, since it requires quantitative data to identify and select participants for a follow-up, in-depth qualitative investigation.

After examining the submissions, the final verified number was 1829 out of a total of 2284 responses received. Using "Purposive" or "convenience" sampling, the researchers selected participants for the focus group. The researcher chose members of the Adamson community who will be the best sources of information. The chosen participants were among those who had taken part in the recent research survey. Out of the 13,380 HEI stakeholders, they have been grouped into four i.e. college students, academic employees, office staff, and administrators.

The set of questions to be asked was discussed between the researchers and counselor to avoid biased outcomes or answers. The number of questions was limited to six and is expected for elaboration during the discussion. Due to the ongoing Covid-19 pandemic, FGD was conducted online through the Zoom platform. A total of 5 Focus groups were established with four to five participants each. Categories were students (varying courses and year levels), Academic Employees, Office staff, and Administrators. Two guidance counselors from the Guidance Counseling Department were assigned for each group to serve as FGD moderators and enjoined with a technical assistant in case difficulty in operating the application arises. A mock FGD was done in one of the student FGD groups to check the viability of the questions and to serve as an example for other moderators and technical assistants involved. All the other FGDs were conducted on the same day simultaneously by using Breakout rooms in zoom. Each group discussion spanned from ten to fifteen minutes. All FGD were video recorded and moderators' notes were transcribed.

3.3 Rigor of the Study

Survey Questionnaire Section	Cronbach's Alpha	No. of Items
a. Stakeholders' Personal Efforts on Sustainability	.81	10
b. Stakeholders' Perception on University Efforts towards Sustainability	.96	16

Table 2: Reliability Test

4. Results and Discussion

This chapter provides an overview of the results and a discussion of the data gathered from the instrument used. Shown in Table 4 are the hypothesis statements that the researchers wanted to answer with the collected data from the research instrument. To analyze the result, the researchers used both SPSS and Graphing Tool.

Research Question	H_1	H_0
1. How does a university define sustainability reflective of the institution's culture and values and its stakeholders?	There is a definition of sustainability reflective of the institution's culture and values and its stakeholders.	There is no definition of sustainability reflective of the institution's culture and values and its stakeholders.
2. What programs should a university employ to ensure its sustainability following the United Nations Sustainable Development Goals?	There are significant programs a university should employ to ensure its sustainability following the United Nations Sustainable Development Goals.	There are no significant programs a university should employ to ensure its sustainability following the United Nations Sustainable Development Goals.
3. What indicators should be employed in the institution's performance evaluation to ensure that a higher education aligns with sustainable development goals?	There are indicators that can be employed in the institution's performance evaluation to ensure that a higher education aligns with sustainable development goals.	There are indicators that cannot be employed in the institution's performance evaluation to ensure that a higher education aligns with sustainable development goals.

Table 3: Hypotheses Statement

4.1 Quantitative Results

The various programs the university should support according to respondents, as shown in Figure 10, are SDG Topics in SDG 4 "Quality Education", SDG 3 "Good Health and Well-Being" and SDG 8 "Decent Work and Economic Growth".

As for the world problems, stakeholders show interest in solving Climate Change and Destruction of Natural Resources show in Figure 4. When asked on what is the most difficulty to do, stakeholders had answered "Choosing a Diet on Sustainability" ($\mu = 5.8$) and "Engaging in Sustainability-related Activities" ($\mu = 6.7$) as shown in Figure 5.
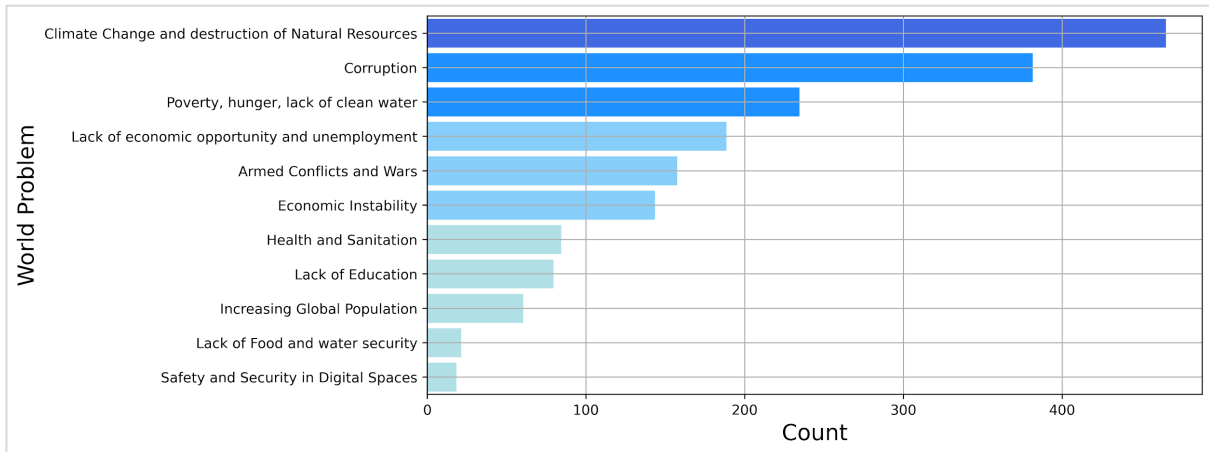
Figure 4: Survey participants' response on "Which of the following do you consider the single most serious problem facing the world today?"
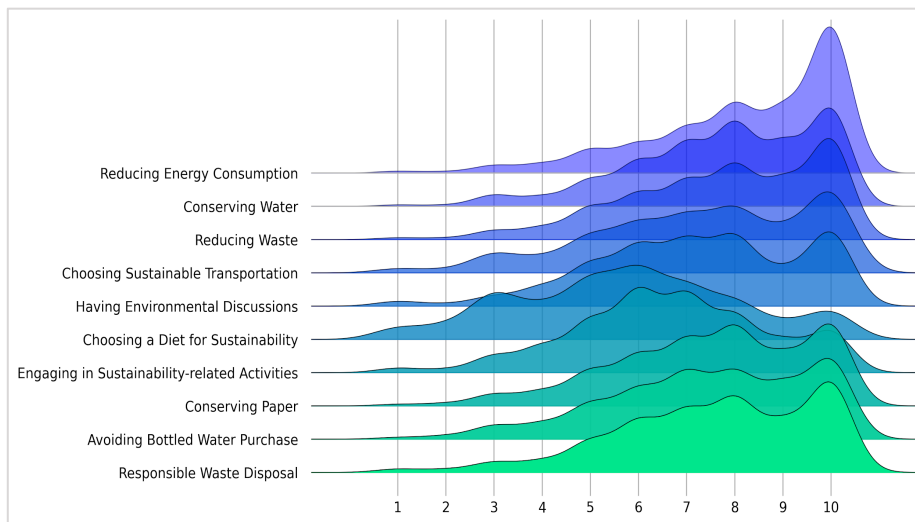
Figure 5: Survey participants' responses on "To what extent do you believe it is difficult or easy for you to do the following?"
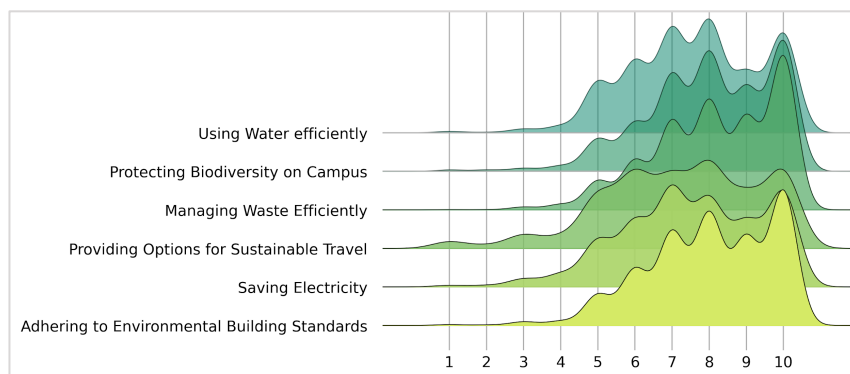
Figure 6: Survey participants' response to "I believe that our university is …": Environment and Climate Change
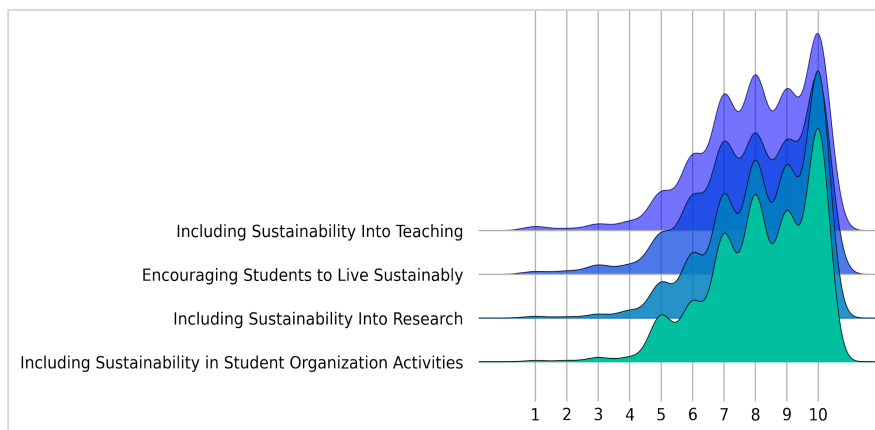
Figure 7: Survey participants' response to "I believe that our university is …":
Teaching and Research
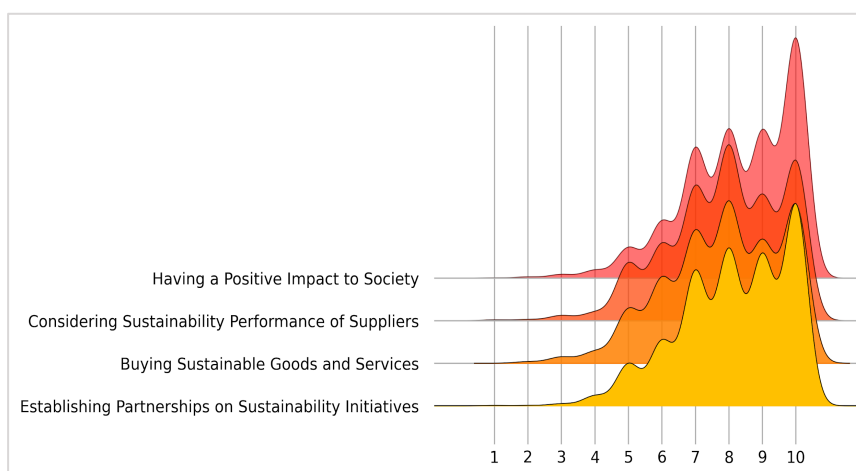
Figure 8: Survey participants' response to "I believe that our university is …":
People, Society, and Partnership
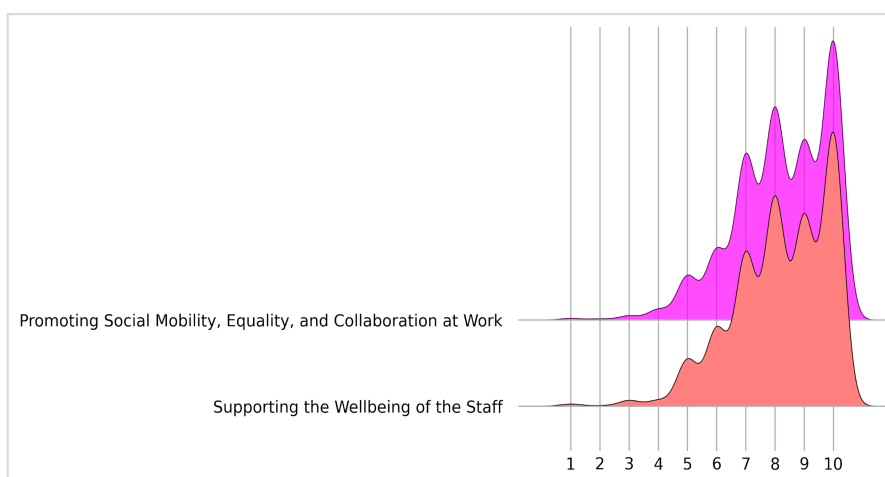
Figure 9: Survey participants' response to "I believe that our university is …":
Administration and Governance
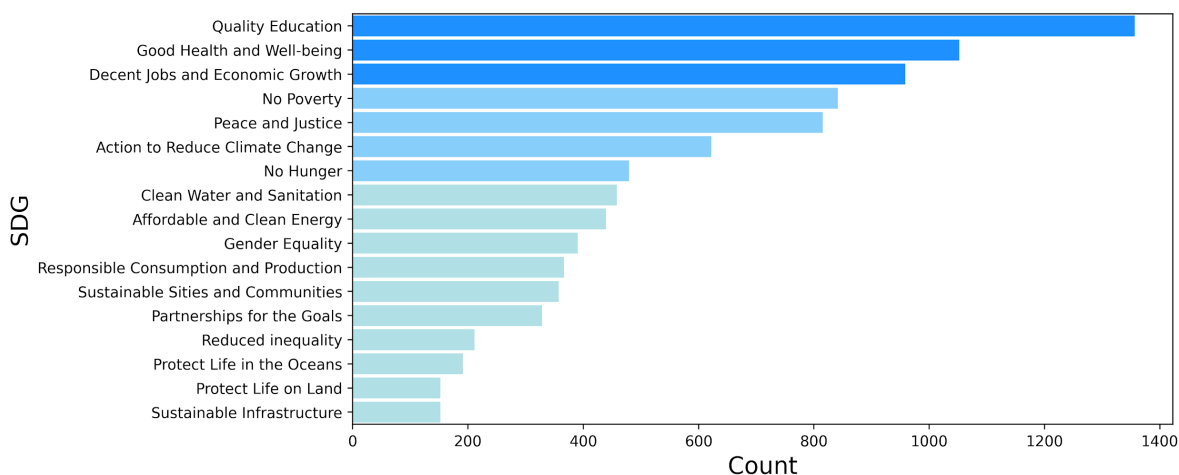
Figure 10: Survey participants' response to "Top SDGs that are most important to you"

When participants were asked the difficulty or easiness to do the mentioned sustainability activities, as shown in Figure 5, easiest for them are the following with p value < .001 i.e. "Act to reduce waste (carry a reusable shopping bag, decline single-use bags/utensils/straws, take a reusable to-go container)" and "Talk with your friends or colleagues about problems related to the environment."

Based on the graphs most of the respondents gave a score (somewhat/strongly agree) in the areas of "Having a positive impact to society" shown in Figure 8 and "Including sustainability in research" shown in Figure 7, these two indicators have the highest mean. Taking note that during the FGD the participants mostly answered their familiarity with Integrated Community Extension Services or outreach department and the Research, where both of it are part of the student's curriculum. The 4 indicators "Using water efficiently", "Providing options for Sustainable travel", "Saving electricity" shown in Figure 6 and "Considering Sustainability performance of suppliers" and Buying sustainable goods and services" shown in Figure 8 got the lowest mean or with mean neither agree nor disagree.

4.2 Qualitative Results

FGD Questions	Theme
1. What is your personal understanding of sustainability?	Resources, Availability and Allocation, Continuity, Development, Goals and Plans, Improvement, Problem-solving, Value Maintenance, Stability
2. What are the existing sustainability programs or activities in AdU that you are aware of?	Aiming for zero-waste, Outreach Programs, Research Proposals until Commercialization, Partnerships, Assistance for continuing Education, Efforts toward Good-health and well-being
3. Do you see the alignment of AdU initiatives, student organizations, and classroom activities with the UNSDGs? How significant are those to you?	Yes, Quality Education, Health and Well-being, Zero hunger, Raising awareness, Research initiatives, Values promotion, - Partnerships, Accreditations, Sustainable Communities

4. In your opinion, which among the SDG Goals would AdU need to focus on? Why?	SDG 9 Industry, innovation and infrastructure (Mention 5 times), SDG 4 Quality Education and SDG 13 Climate Action (Mention 4 times), SDG 3, Good Health and Well Being, SDG 11 Sustainable Cities and Communities and SDG 17 Partnership for the Goals (Mention 3 times)
5. What will motivate you to participate in a sustainability event or activity? Why?	Advocacy, Establish relationships, Support Sustainability, - Help and encouragement, Taking actions, Responsibility, Setting an example, - Show commitment, Sense of fulfillment
6. If you will be participating in a sustainability activity, what are your expectations or expected outcome?	Furtherance of knowledge, Enlightenment, Self-development, Broader perspective, Actions and interactions, Encourage, Advocacy

Table 4: Hypotheses Statement

5. Conclusion

Sustainability has been understood well and internal stakeholders were all aware based on what they have learned and experienced at the university. Based on the study's theoretical framework and data gathered, a concentration and emphasis on Teaching and Research are noticed to be dominant as compared to the other 3 components which are concerned about Admin and governance, environment and climate, and people and society.

Stakeholders' perceptions of the most important issues to concentrate on, such as the SDGs, global issues, and individual hurdles in adopting sustainability, can be used to develop sustainability initiatives.

For the last point, sustainability is heavily emphasized in research-related projects and initiatives as well as outreach and community programs; however, other departments and areas of the university are considered to be undertaking less impactful initiatives to integrate sustainability. It has been significant since it is easier indeed to teach and learn but definitely harder to put them into practice.

This study concludes by making stakeholders realize which areas are we lacking effort in, which areas need to improve, and which areas we can be helpful with based on our expertise and interests. They will therefore be urged to put whatever learnings and experience they had into application.

Evaluations are almost always done by third-party accreditors. However, this study considered internal stakeholders using random sampling of participants. This study almost acts as a mirror for self-reflection, having a look from different perspectives, points of view, and from the standing point of each different individual involved representing most of their population and having their say in establishing a policy, making them feel very much involved, that they were really a part of it and were all subjectively considered in it.

It is advisable to establish possible Green or Sustainability office governance which can be an effective tool in supporting the implementation of sustainability initiatives on campuses, and

in fostering awareness among students and staff on matters related to sustainable development.

Another recommendation is that the university must offer the knowledge and skills necessary for continuous development so that all its branches can achieve sustainability goals.

And for the last point, it is vital to know that Adamson university is a part of the so-called "University belt". U-belt refers to the area where there is a high concentration of colleges and universities in the capital city of the Philippines, Manila. This study may also pave way for HEIs to collaborate with Sustainable initiatives and actions in the future.

The authors recommend that this study continues by applying the same framework to other U-belt universities to determine the overall status of local HEIs. This could lead to determining the lacking of each HEI and what they could still work out. Leading to future partnerships and collaborations to fill in the gaps.

Acknowledgements

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Empowering Self Regulated Learners:
Embedding of IB ATL Skills Through Digital Literacy in Primary Students

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Abstract
The Covid-19 pandemic has resulted in a turning point of creativity in the field of education with the abrupt commencement of remote learning in March 2020 via online platforms. The ongoing digital transformation was accelerated and forced students to drastically adapt and adopt new approaches to their academic learning. In order for teachers to support children's autonomy and motivation in their learning environments, the International Baccalaureate (IB) Approaches To Learning (ATL) skills through digital literacy were planned and embedded into their learning. The aim of this paper is to provide creative strategies for embedding ATL and digital literacy skills in students as they self-learn. The evidence will be a descriptive qualitative single case study, demonstrated through student work and their personal reflections throughout a semester of blended learning. Self regulation is defined as beliefs about their capability to engage in appropriate actions, thoughts, feelings, and behaviors in order to pursue valuable academic goals, while self monitoring and self-reflecting on their progress toward goal-completion (Zimmerman, 2000). The IB ATL skills are grouped into 5 categories: Communication, Research, Thinking, Self-Management, and Social Skills (King, 2013) and digital literacy is one's ability to communicate, evaluate and synthesize through a variety of digital platforms. Most students have been found to demonstrate the ability to become self regulated learners with influencing factors that included self efficacy and a strong home and school support system.

Keywords: Approaches to Learning, Self Regulation, Digital Literacy

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Introduction

As an International Baccalaureate (IB) school, *student-centered and inquiry-based learning* is the cornerstone of the programme, where students are encouraged to ask questions, engage in discussions, and learn how to learn (International Baccalaureate Organization, 2019). When schools were closed due to the COVID-19 pandemic, teachers were challenged to rapidly adopt new methods of teaching to keep students motivated and engaged. In Indonesia, the large-scale restrictions that were enforced created particularly challenging circumstances for both teachers and students as real human engagement that is characteristic of the IB programme was replaced with sitting in front of a screen for long periods of time.

As the school moved towards blended learning where some classes were held onsite and others online, teachers created concept and skill-based flexible schedules, which were a particular challenge in carrying out online learning. Reliance was placed on digital platforms with lower primary students (Years 1-3) using *Toddle* and upper primary students (Years 4-6) using *Google Classroom*. Daily classes were conducted using Google Meet, wherein some students had adult supervision, and others fully depended on the teacher online for assistance. This blended learning situation resulted in students who were usually outspoken in class to be quiet and reserved, and vice versa. To accommodate these difficulties, the expected abilities of students in each year level and assessments were lowered down, and focus was instead directed towards each student's own efforts and commitment.

Self regulation is the ability to monitor and develop awareness of one's thoughts, feelings and behavior. Zimmerman (1986) states that "*students can be described as self regulated to a degree that they are metacognitively, motivationally, and behaviorally active participants in their own learning process*" (p.4) Teachers can empower self regulation in the classroom with creative strategies that guide students to plan, perform, and reflect. However, it is important to first understand the differences between the process of becoming a self regulated learner and strategies to optimize these processes. The process of becoming a self regulated learner entails self efficacy and motivation, whereas strategies to optimize the process are goal setting and skill acquisition. Success is reached when a student is motivated and shows a strong sense of self efficacy. This process that Zimmerman's model posits is similar to that of the IB's inquiry-based teaching and learning, in the sense that it emphasizes the cyclical process of planning, performing, and reflecting.

An integral element to the IB's inquiry-based programme is the Approaches to Learning (ATL) skills developed by Lance King in 2013, which aim to help schools cultivate a culture of learning that promotes the concept of "learning how to learn" (Kameda and Komatsu, 2022). The IB ATL skills are as follows: thinking, social, research, self-management, and communication. According to the World Economic Forum, by 2025, half of the world will require reskilling (World Economic Forum, 2020), with a majority of skills such as problem solving and critical thinking as seen in figure 1. Upon observing the familiarity of the ATL subskills and the skills needed for the future of tomorrow, the 5 ATL skills were embedded into planning with a goal to develop the student's ability to *learn how to learn.*

Figure 1 : Top 10 skills of 2022

With the accelerated pace of the digital era during COVID-19, teachers and students were pushed to quickly adopt new ways of learning. However, the difficulties that this rapid change caused also brought forth questions of the methods being used to approach and teach students. With a goal to create more teacher-student engagement through blended learning, focus was placed on making the most out of the IB ATL skills. These skills, however, that would be immensely beneficial for students to have, including nuanced critical skills and the ability to contribute by engaging and discussing, are not innate nor are they easy to acquire. Nonetheless, given the opportunities, these skills and knowledge *can* be learned. This article aims to provide creative strategies to guide teachers towards empowering self regulation through the implementation of the IB ATL skills and digital literacy.

The Approaches to Learning Skills (ATL)

The World Economic Forum estimates that 65% of today's primary school pupils will end up working in jobs that do not even exist yet (World Economic Forum, 2016), which underlines the need for skill-training as the future of jobs will require people with a different skill set from today (Brown, 2020). Thus, in order for learners to land a job in the future, they need to have a sense of "learnability", that is, a desire towards learning, in order to acquire skills that help them adapt quickly and have the passion to continuously improve. Therefore, the skills that learners need to acquire to function in tomorrow's society are compassion, empathy, and cooperation. These seemingly simple skills will support learners in the future in negotiations and persevere through changes that may occur. The IB ATL skills, which are taught implicitly throughout the unit, provide just that opportunity for students to develop.

The approaches to learning (ATL) skills integrated in IB programmes are designed to help students develop skills relevant across the curriculum. These ATL skills support purposeful inquiry and set the foundations for lifelong learning (National Education Association, 2014). Effective implementation of these ATL skill sets into the school's IB curriculum will assist students in 'learning how to learn' - to develop the necessary skills in effectively managing and evaluating the process of their own learning (Kameda and Komatsu). The ATL skills are grouped into 5 categories:

- Communication skills
- Self-management skills
- Research skills
- Thinking skills
- Social skills

These skills are further placed into clusters as shown in the figure below:

Skills Categories	Skill Cluster	Definition
Communication	Communication	The skills of effectively exchanging thoughts, messages and information through interaction The skills of reading, writing and using language to communicate information
Social	Collaboration	The skills of working cooperatively with others
Self-management	Organization	The skills of effectively managing time and tasks
	Affective Skills	The skills of managing state of mind
	Reflection	The metacognitive skills of re-considering what has been taught and learned by reflection on content, ATL skills and learning strategy use
Research	Information Literacy	The skills of finding, interpreting, judging and creating information
	Media Literacy	The skills of interacting with different media to compare and contrast different representations of information
Thinking	Critical Thinking	The skills of critique of text, media, ideas and issues
	Creativity and Innovation	The skills of invention – developing original and novel ideas and products
	Transfer	Utilizing skills and knowledge in multiple contexts

Table 1: Skills Grouped Clustered

In the school, the ATL skills are mapped out according to the 6 units taught within the academic year. Teachers collaborate to decide which ATL skills should be the focus for each unit taught thus that the implementation would be optimal. As seen in the figure below, some ATL's may be repeated depending on the *unit of inquiry.* The programme is reviewed yearly to reflect and make possible changes on the focus of every unit.

Figure 2: Year 1 Tunas Muda Programme of Inquiry

In order to develop the ATL skills necessary to become a self-regulated learner, metacognition is required. Metacognition means noticing present learning or thinking strategy use, analyzing, comparing, experimenting, gathering feedback, making changes and implementing new strategies (King, 2013). The development of metacognition in young students is shown or seen when they are aware of their learning process, the ability to plan goals, organize, process and reflect on how to develop and improve. These qualities also coincide with that of a self-regulated learner. As a young learner in primary 1, the student was provided with guidance to achieve metacognition through a guided step-by -step planning, processing and reflecting progress, which can be seen in appendix A.

1. Communication Skills

During our second unit of inquiry, where students explored how environments reflect the needs and values of the people who use them, students were asked to work together with a parent to use Google Maps and observe the environment around them. This was done by first asking students and parents to explore how Google Maps displays surrounding landmarks in the environment, before then asking them to list down 5 places they see around their house.

As seen in appendix B, this activity allowed students to develop their communication skills through collaboration with a parent using digital media.

2. Self - Management Skills

In developing self-management skills, students were guided to reflect upon their progress to develop and improve. They monitored themselves and thought of how they had progressed through the learning engagements. In appendix C, the student answered questions relating to the unit of inquiry including how they felt about the development of the focused ATL skills.

3. Research Skills

In appendix D, students demonstrated research skills through their presentations. Throughout the units of inquiry, the student presented information through a variety of media formats: *Toddle, Google Slides, Google Jamboard, Video/ voice recording.* The student had learned previously during daily Google Meet sessions how to present and use different applications that best suited them.

4. Thinking Skills

In appendix E, thinking skills were developed by the student's ability to use a visible thinking routine, '*see, think, wonder'* to describe the materials of objects seen. This was done to gauge student knowledge of the unit of inquiry. In appendix F, the student tested a boat they created with a given problem. The student had to think of how to test generalizations and conclusions. In appendix G, the student made guesses by asking "what if," questions and generated testable hypotheses through visual arts. These are seen in their writing in black.

5. Social Skills

In appendix H, the students worked together in a group using the *Google Breakout Room* to discuss roles and responsibilities for the summative assessment. The student managed to resolve conflicts and work collaboratively in teams, exercise leadership and took on a variety of roles within groups as well as listened actively to other perspectives and ideas. Each group in different breakout rooms were given agency and responsibility to manage themselves. As Google Jamboard allows multiple users, the student works together with their team to decide on the roles and pages for each person. This allows the opportunity for growth as well as confidence to take on a leadership role. The development of social skills is also seen during daily Google Meet sessions where the student works together to follow online class rules. See appendix I.

In the figure below, King (2013) provides a rubric to assess student development of the IB ATL skills for any learning experience or period of performance.

There are four levels of development of any ATL skill:

Novice *Watch*	Learner *Copy*	Practitioner *Do*	Expert *Teach*
Can identify the skill when others are using the skill	Can copy others performance of the skill	Is practicing and working towards being able to use the skill whenever needed	Uses the skill automatically and autonomously Could teach others the skill
High levels of scaffolding needed from teacher	Medium level of scaffolding needed	Less and less teacher scaffolding required	No teacher scaffolding required

These four levels of increasing skill proficiency can be broken down into a rubric of progress from a student's point of view. Students can then assess their own development of any ATL skill using the following self-assessment rubric.

F	E	D	C	B	A	A+
Novice *Watching*	Learner *Copying*	Practitioner *Doing* Starting	Practising	Getting better	Got it!	Expert *Teaching*
I know what the use of the skill looks like when others are using it	I can copy someone else using the skill	I am starting to use the skill by myself	I am using the skill by myself in familiar situations	I am getting better at using the skill in unfamiliar situations	I am able to use the learning skill whenever I need to	I use the skill without needing to think it through first
I can break the skill down into steps	I use the skill one step at a time	I am still conscious of using the skill one step at a time	I am starting to put all the steps of the skill together	I can usually use the skill without referring to the way that I have done it in the past.	I can confidently use the skill without referring to the way that I have done it before	I am capable of teaching other students how to use the skill
When I try to use the skill myself I make lots of mistakes and ask lots of questions	I still make mistakes and ask for help but I am getting better at correcting my own mistakes	I can correct my mistakes with some help	I can correct my own mistakes	Any mistakes I make I can quickly correct	I can usually correct any mistakes automatically	I correct any mistakes I make automatically
I need lots of help to use the skill	I can use the skill in familiar situations with some help	I still need help to use the skill sometimes	I don't need help to use the skill in familiar situations anymore	I still need help to use the skill in unfamiliar situations sometimes	I hardly ever need help to use the skill anymore	I can use the skill in unfamiliar situations without any help from anyone else

Figure 3: Rubric to assess student ATL skills

Students are given a self assessment form after a learning experience to reflect on how they feel after they have done the task. This allows them to express their ideas and feelings on their learning process and provide them with an opportunity to improve if they feel the need as shown in appendix J.

Self - Regulated Learners (SRL)

Academic self-regulation refers to self-generated thoughts, feelings and actions intended to attain specific educational goals, such as analyzing a reading assignment, preparing to take a test, or writing a paper (Zimmerman et al., 1996, p. 2). Students who are academically self-regulated are seen to be responsive, aware, and actively seek opportunities to learn. They are

not reactive to their learning outcomes, but rather proactively seek opportunities to learn (Zimmerman, 1989). They have developed skills to help them learn effectively, to motivate them to get started, and to manage setbacks and persevere when tasks become challenging. Self regulated learners strive to reach their goals and actively listen and work towards finding their own way of learning.

During the pandemic, classrooms were brought home through a screen and parents played the role of a supporting teacher to assist their child during Google Meets. While some parents had a head start in learning how to use digital platforms and applications, those who were unable to assist their child because of their own jobs, had to wholly place their trust in the teachers online. Both parents and child encountered times of frustration and difficulty upon operating new applications and platforms for learning. That being said, teachers had to explore strategies to help and guide both parents and children throughout the learning process online, and continue to achieve goals placed for the academic year. Teachers had to come up with ideas and solutions to help students self regulate and reach a stage where they were able to learn how to learn. Smart learners ultimately learn more with less effort once they discover the processes that work best for them, and this is where self-monitoring and other self regulatory processes come into play (Zimmerman et al., 1996, p. 8). In figure 4, we can see the phases and processes of self-regulation according to Zimmerman and Moylan (2009).
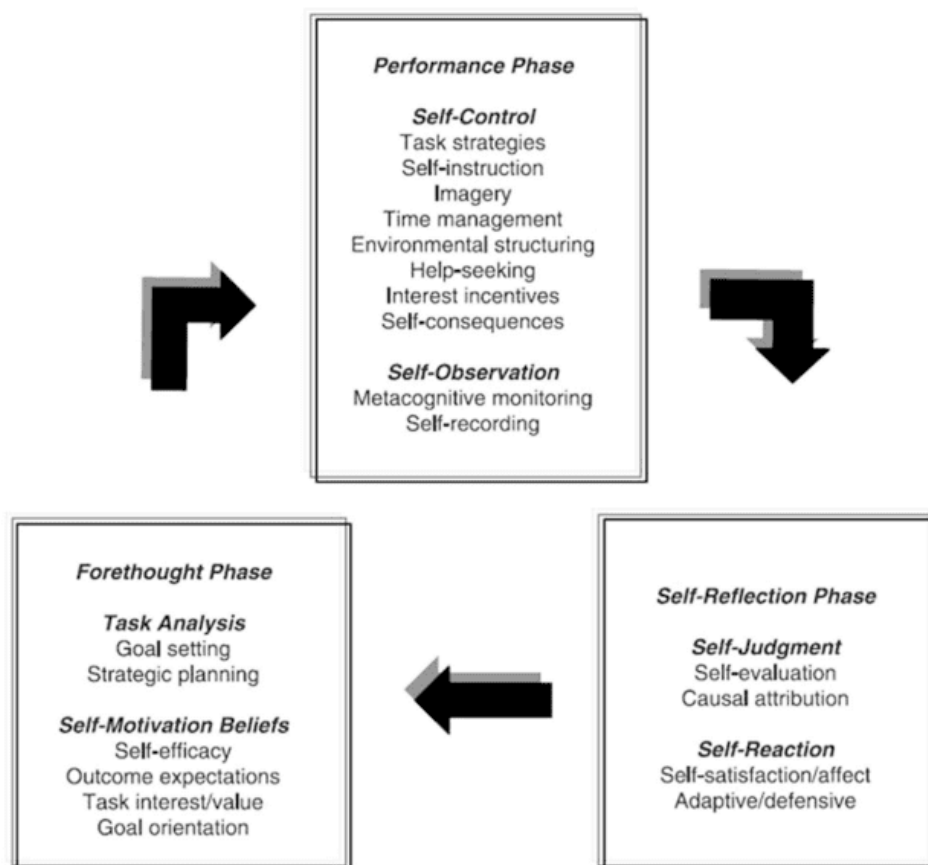
Figure 4: The phases and processes of self-regulation
according to Zimmerman and Moylan (2009)

As seen in figure 4, the cyclical process includes 3 stages: the forethought phase, the performance phase and the self-reflection phase. In the initial stage, students set a goal and assess their ability to complete the task. In the classroom, students are provided with a 'goal-setting contract', to which they were guided through a series of feedback and discussions of goals they wish to achieve, as seen in figure 5. Students were also provided with a brainstorming template to guide them through the planning stage of goal-setting. This was found to be effective as students were seen to try their best to follow their plan. These goals include personal, social, emotional, as well as academic goals. Although this is seen as a general goal rather than a task oriented goal, it is a step towards providing students the skills needed to understand the process to which they can achieve the goal.

Figure 5: Student Goal Setting Contract

In the next phase of Zimmerman's model, the performance phase, students observe their own learning process to achieve these goals. To aid this process, students are reminded by the goals that have been printed and placed on their desks. While the teachers' role in this phase is to provide encouragement and guide the students in daily self-reflections. In the last phase of this model, students reflect on themselves to best decide how they have reached their goals. This self-reflection provides students with an opportunity to share whether they continued with their original plan (appendix J). These steps are recorded using a variety of methods, including anecdotal notes, videos, and screenshots. The application of this cyclical model empowers students to become self-regulated and independent.

Self - Efficacy and Motivation

An integral component of self-regulation is self efficacy and motivation. For students to become self regulated learners, they must exhibit self motivation and self efficacy towards the task. Motivation is vital to a student's desire to learn and engage during blended learning. When a student is motivated, they show more engagement in conversations and a greater willingness to learn. According to Bandura (1989), a heightened motivation is evident in their continuing tendency to set higher goals for themselves when they achieve earlier goals. On

the other hand, self efficacy is one's attitude towards a specific goal or task in a certain context, i.e. their perceived ability. When a student feels that they understand a certain concept when taught online, they become motivated and interested. Higher self-efficacy beliefs increase the use of self-regulation strategies (Pajares, 2008) and this can consequently lead to an increase in academic achievement (Bouffard-Bouchard, Parent, & Larivee, 1991; Schunk, 1984; Schunk & Hanson, 1985; Zimmerman & Martinez-Pons, 1990).

Digital Literacy

With the modern era quickly accelerating into a digital one, it has never been more important for students to comprehend and make judgments about information they find online. The origins of the understanding of digital literacy can be traced back to Paul Gilster. According to Gilster (1997), digital literacy is about mastering ideas, not keystrokes, in other words, an extension to the ability to read and write. However, the interpretation of the reading depends on the reader. Therefore, digital literacy is built on general literacy and reading skills to help people understand how digital technology functions in an effective manner. According to the American Libraries Association's Digital Literacy Task Force (2011), a digitally literate person is someone who:

- possesses the variety of skills – technical and cognitive – required to find, understand, evaluate, create, and communicate digital information in a wide variety of formats;
- is able to use diverse technologies appropriately and effectively to retrieve information, interpret results, and judge the quality of that information;
- understands the relationship between technology, life-long learning, personal privacy, and stewardship of information;
- uses these skills and the appropriate technology to communicate and collaborate with peers, colleagues, family, and on occasion, the general public; and
- uses these skills to actively participate in civic society and contribute to a vibrant, informed, and engaged community.

During hybrid learning, the school decided to see the situation as an opportunity towards the inevitable future of the digital world. Teachers were provided opportunities to explore applications and were provided with professional development and ongoing feedback for management to consider.

Throughout hybrid learning, teachers would introduce a variety of applications and platforms in all areas of learning. For example, during mathematics, aside from realtime teaching and learning, applications used included Quizizz, Epic, Google Jamboard, Google Form and Google Polls. When the applications were being used, students would share their screen through Google Meet and be given opportunities to ask questions and help other students who need clarification.

Prior to students being introduced to these platforms and applications, a session for parents was also provided at the beginning of the academic year. During this session, parents were made aware of the applications and platforms used, as well as a step by step guide to use the platform Toddle.

Students would further explore platforms and applications during their online breaktimes when they were supervised in a Google Meet to socialize and share ideas and stories. They learnt how to converse and take turns to share. Gilster (1997) mentioned that digital literacy

is partly awareness of other people and our expanded ability to contact them to discuss issues and get help.

Figure 6: Digital Literacy Concept (JISC Digital Capacity Framework, 2015)

As seen in figure 6, the digital literacy concept demonstrates that interaction in the digital world requires more than just the ability to access applications, but understanding how to use them and what it means. Eshet (2002) emphasizes that digital literacy should be more than the ability to utilize various digital sources effectively.

Students became digitally literate throughout the pandemic because of the learning situation. Their ability to quickly learn and adapt made hybrid learning easier. During times of online learning, students also developed their self-management skills to manage setbacks (bad internet connection, frustrations), organize themselves, by selecting and using appropriate technology effectively and productively. While teachers ensure each student's ability to comprehend the technology or application before assigning learning engagements or assignments.

Conclusion

By embedding the IB ATL skills in learning, students were empowered to become self-regulated learners. Using creative strategies and including the mapping of ATL skills, empowered self regulation in students, as well as opportunities to use different platforms and applications with guidance from teachers. Upon mastering a new application or platform, that is, being able to operate it independently, students demonstrated self efficacy and motivation. This resulted in students feeling a sense of accomplishment and an eagerness to self-regulate. The IB ATL skills provided teachers with a focus to teach the unit of inquiry with a strong backbone of one of the 5 skills. When a specific skill is targeted for a learning experience, teachers find it easier to teach the concept and students are more likely to engage and discuss. When students see the value in learning, they are more likely to plan and set goals (forethought phase). When goals are set, the student learning process is clearer and easier to

manage, and the teacher can mentor them in areas they might find challenging (performance phase). After a skill is attained, students who achieve the targeted skills and concepts, are more likely to self-reflect and celebrate their accomplishments.

During the length of hybrid learning, the student demonstrated empowerment towards becoming a self-regulated learner by showing awareness towards their learning process and self reflection. Given enough time to explore and use different applications and platforms daily during Google Meet sessions, the student becomes digitally literate. Their ability to use applications and navigate platforms independently further empowered them to become self regulated learners.

Appendix

Appendix A

Guided step by step planning, processing and reflecting progress
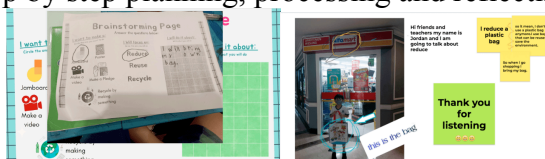
Appendix B

Activity with parents to develop communication skills

Appendix C

Student's reflection to develop communication skills
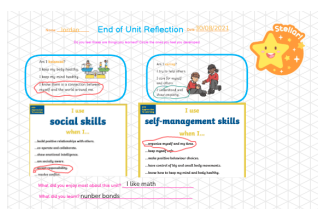
Appendix D

Demonstrate Research Skill through Presentation
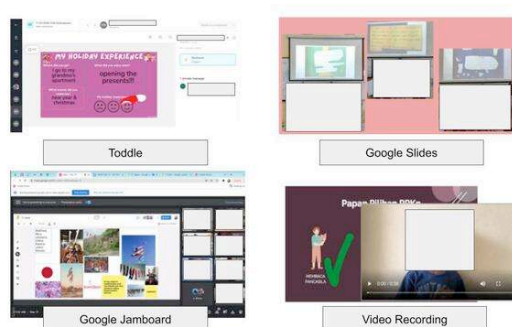
Appendix E

See, Think, Wonder Activity
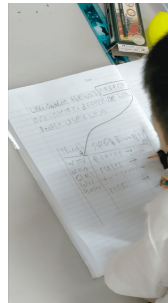
Appendix F

Demonstrate Thinking Skills
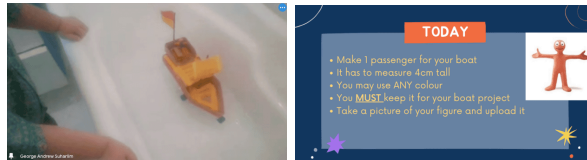
Appendix G

Demonstrate Thinking Skills

Appendix H

Demonstrate Social Skills
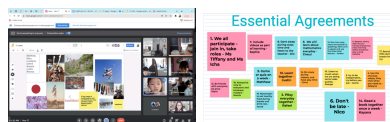
Appendix I

Online class and Jamboard Rules

Appendix J

Online class and Jamboard Rules
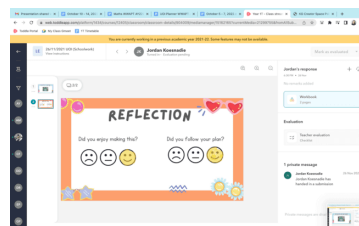
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A Study of Taiwanese Teachers' Perceptions of ELTAs

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Abstract

Since March 29th, 2021, the Ministry of Education (MOE) launched the "U.S.-Taiwan Education Initiative: Center for Bilingual Instruction" in Kaohsiung so as to thoroughly implement the Bilingual 2030 Policy in primary and secondary education. Wenzao Ursuline University of Languages (Wenzao) plays an important role in this long-term program. By recruiting foreign students, both native (NS) and non-native speakers (NNS) of English and developing their pedagogical content knowledge, these foreign students will turn into English language teaching assistants (ELTAs hereafter) and be allocated in different schools in Kaohsiung to assist local Taiwanese teachers in teaching English and/or other subjects by using English. The current research study investigates how the Taiwanese teachers perceive the effectiveness of teaching and learning English and/or other content knowledge with ELTAs in elementary/secondary schools. IRB-HS will be taken into account. With informed consent, the teacher interviewees will be aware of the topic of research, the purpose of the study and the use of the research results. All their identities will be untraceable to protect their privacy and rights. It is hoped that the research findings will present how Taiwanese teachers benefit from teaching English and/or other content knowledge with ELTAS and how the ELTAs make good use of their teaching knowledge and skills to help the local teachers and students, which are likely to shed light on the further improvements that Wenzao can make, such as the recruitment and selection of foreign students, the ELTAs training workshops the correspondence between Wenzao and those participating local schools, and the cooperation of ELTAs and local teachers, so on. Pedagogical and administrative suggestions will be made accordingly.

Keywords: ELTA, Co-Teaching Methods, K-12 Education

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Introduction of the ELTA Program

In 2021 K-12 Education Administration, Ministry of Education has been assigned the task of allocating English Language Teaching Assistants (ELTAs hereafter) in elementary and secondary schools in Kaohsiung City. The purpose of this plan is to expose Taiwanese students to more, varied English inputs and resources by interacting with ELTAs who speak English as the medium of communication. Through exposure to English more frequently, it is hoped that Taiwanese students are likely to produce English outputs naturally, advance their understanding of different cultures and the language, learn English and content knowledge in class, and use English to finish activities, and so on in the daily context. Hence Taiwanese students can actually experience language in real life instead of solely learning textbook knowledge in the classroom. In the long run, this kind of pedagogical intervention may cultivate Taiwanese students' English proficiency and improve their international competitiveness and mobility, which represent the main goals of the Bilingual 2030 Policy.

For the first year of this ELTA program, elementary or secondary schools in Kaohsiung City can apply for one ELTA who can co-teach with the local teacher or assist him/her in teaching English and/or other subjects four hours a week and for 12 weeks at most in one semester. A diverse group of ELTA candidates must have completed an 18-hour training program before they are matched to different schools. In order to prepare these candidates to go through the following selection process and the purpose of screening qualified ELTAs, an 18-hour training program serves to (1) introduce classroom language and management techniques frequently used in the English classroom, (2) acquaint candidates with the most popular teaching approach (i.e. content and language integrated learning) and lesson planning, (3) inspire candidates' imagination and creativity in developing teaching/learning activities, (4) establish the mindset of cooperating with local Taiwanese teachers, and (5) how to teach online effectively. This group of ELTA candidates attend a series of workshops instructed by Fulbright advisors; the topics include classroom language, classroom management, CLIL, teaching activities design, co-teaching and cross-cultural communication, effective online teaching and lesson planning. These workshops range from the teaching approach to teaching skills and techniques. These topics are selected to prepare ELTA candidates for their likely teaching job in local schools. All these topics help ETLA candidates learn how to increase student talk time in the classroom, maintain Taiwanese students' involvement during class, stimulate their learning interest, have them experience the joy of language learning with someone other than their teachers and peers, and so on. Afterwards, the slate of the ELTA candidates will be screened again; their attendance, class participation, teaching experience, motivation for co-teaching in local schools, and so on will be considered and evaluated before they are officially nominated for the Wenzao ELTAs. After these preparation and selection processes have been carried out, these nominees can be allocated to different schools according to their availability of co-teaching hours during the semester and the time slots arranged by the schools. The Wenzao ELTAs will cooperate with either English teachers or subject teachers in those elementary or secondary schools.

There are many benefits of this kind of co-teaching in the classroom. For example, teachers or textbooks are not the only English resources. Students can be exposed to different teaching methods or styles, various activities, and varied classroom practices. All these differences benefit students in accommodating their individual learner needs, learning styles and personalities. Students can gain more support from more skilled others and communicate more frequently with the extra teaching professional in the classroom. In addition, with someone coming from a different cultural background, students are likely to raise their cross-

cultural awareness and communication by learning and using English, which is one of the core competencies emphasized in 108 New Curriculum. Other than that, not only a Taiwanese teacher but a foreign teaching assistant can demonstrate how to use English authentically in real life, present natural interactions and communications between speakers of English, model the target language to be learned, and solve communication problems by using strategies. During the co-teaching process, these Wenzao ELTAs will be encouraged to attend the workshops designed by the advising educational consulting team of Fulbright from October 2021 to January 2022 and onwards.

Significance of the Study

As this is the first year that Wenzao is involved in this ELTA program, it is important to learn how the Taiwanese teachers perceive the Wenzao ELTAs after they have carried out in-school teaching for a period of time in those local schools during the semester. Any to-be-improved procedures will be modified before the same program proceeds in the next academic year for more other elementary and secondary schools to apply for ELTAs. Any successful experience, hopefully, can be mimicked and implemented to benefit more Taiwanese teachers and students in other cities in the future. When none of the other university-level institutions participates, only Wenzao and National Sun Yat-sen University (NSYSU) pioneer this ELTA program and go through every step during the process of recruiting ELTAs, training ELTAs, assigning ELTAs to different local schools and feed backing to the Division of Junior High and Elementary Education at K-12 Education Administration, Ministry of Education. Whenever unexpected problems occur, they present the best opportunity for the whole ELTA administration team to learn from experience. Hence collection and analysis of these records is a must if this ELTA program may be extended to other areas, including outlying islands, in the near future. To achieve this purpose, the current study plays an essential role in shedding light on the further development and implementation of the ELTA program.

Research Method

The researcher conducted a semi-structured interview study in January 2022 to explore the overall perceptions of the Taiwanese teachers on the Wenzao ELTAs. The advantages of employing interviews include the depth and the comprehensiveness of the qualitative data, which can help Wenzao make contextualized (and even customized) adjustments to the implementation of assigning ELTAs to elementary and secondary schools. On the other hand, as there are 15 schools in different urban and rural areas in Kaohsiung during the 2021 academic year, it is not easy to visit all the local schools, in some of which the Wenzao ELTAs work with more than one teacher and help them teach Taiwanese students in different grades. In addition, it is difficult to interview all the teacher participants, transcribe the interviews and then analyze the data in a short time. At the initial stage of the program, it might be more efficient by focusing on the Taiwanese teachers in charge of assigning work to the Wenzao ELTAs in the local schools to explore their perceptions of the way to teach/learn English with the Wenzao ELTAs and how their students benefit from this program.

Before the interview study began, all the teacher participants' consent was obtained to attend to IRB issues. Only one of the schools rejected to participate in the study. As the Taiwanese teachers are all grown-ups, their consent to participate in this research can be given by themselves. This step was completed by collecting their advance informed consent via email or LINE as well as verbally. It was not until October 19th, 2021 that Wenzao received the

finalized list of the 15 local schools officially announced by K-12 Education Administration, MOE, and informed the schools and the ELTAs of this great news immediately. The Wenzao ELTAs started to teach in early November rather than September as planned initially. Despite the fact that this delay affected the implementation progress, the ELTA program got underway, and the trained ELTAs embarked on their teaching journey from then on. By the end of the first semester in the 2021 academic year, 14 Taiwanese teachers were interviewed online in Chinese for 30 to 55 minutes individually. The interview guide consists of eight guided questions which are listed separately in the next section. The interview data were transcribed in Chinese afterwards; the interview excerpts are translated into English in this paper for the purpose of presenting the data. All the data will be saved in the researcher's laptop with locked access to the documents. The e-files will be deleted three years once the interview study has been completed.

The interview data was analyzed by categorizing the contents according to the interview guide to explore how the Taiwanese teachers perceive their co-teaching with the Wenzao ELTAS. The role of the ELTAs in this program will also be discussed and the results can be used to reflect on the first-year stage of the program carried out in the ELTA Educational Resource Center at Wenzao. Any likely findings may bring about further suggestions on the improvements that K-12 Education Administration, MOE, can make in the second year of the program. Also, this program might probably be implemented in other cities in the future on the basis of the achievements obtained in the current ELTA program in Kaohsiung. Therefore, both of the teachers' positive and negative comments on the Wenzao ELTAs will be presented in the following. Any pedagogical or administrative suggestions will be made based on these in-service Taiwanese teachers' reflections.

Research Findings and Discussion

The interview findings were generated based on a thorough review of the interview transcripts and represent commonalities across the different teacher interviewees. These commonalities will be identified by following the interview guide in this section. Any unanticipated responses will also be discussed whenever needed. There are eight questions in the interview guide. The interview data will be presented and discussed as follows.

Question 1

The first question is '*Why did your school participate in the 110 學年度國民中小學引進部分工時外籍教學助理實施計畫 in the first place?*' Most of the teachers (N=10) said that the school administration, such as the Director of the Academic Office, passed on this ELTA program to them and consulted their opinions on integrating one ELTA in their English class for four hours a week. By participating in the ELTA program, these schools hope that ELTAs can expand their students' horizons, create opportunity for students to use English for the purpose of communication, nurture their motivation for using English authentically in a natural environment, raise their awareness of cross-cultural understanding, give them extra English inputs, trigger their creativity, and so on. Among the other teacher interviewees, one of them mentioned that she voluntarily applied for an ELTA for her homeroom class. She used to be an English teacher at the school and started to adopt a new role and become a homeroom teacher in September, 2021. As she had cooperated with five American teaching assistants, including one Fulbright's English teaching assistant (ETA), she thought she could work with one ELTA to develop her CLIL teaching this time. The above responses were not unexpected. The schools' or the teachers' initial motivation for applying for the ELTAs was

mentioned, which somehow corresponded to the core objectives of the ELTA program. Once the program started to roll around, whether or not it could match the teachers' initial expectations is worth our attention. The second interview question probes into this issue.

Question 2

In response to the second question, '*What part of this program matched your expectation? What did not?*', the teachers reflected on the process of executing the program. Concluding their feedback, the teacher interviewees mentioned what matched their expectations and what failed to satisfy their needs. First of all, through having an ELTA from overseas in class, most of the teachers said that the students indeed had a hands-on experience of interacting with foreigners in simple English used as the means for communication. This kind of real-life example of using English as a tool instead of a school or exam subject is the best language education. Language is learned to communicate intentions. It is hoped that the students' attention can be shifted to the practicality and the value of learning English. Four of the teacher interviewees emphasized that the existence of an ELTA in class also presented an opportunity for the Taiwanese students to develop a broad-minded attitude toward English and its users. What the ELTAs brought into the classroom was quite authentic to help the students to appreciate exotic cultures, customs or festivals firsthand. In addition, four teacher interviewees observed their students' improvements on their interactions with the ELTAs as time went by. To be more specific, the students' fear of speaking English or interacting with the ELTAs seemed to be alleviated to some extent. This kind of English-using behavior was a good sign to learn English at a young age.

On the other hand, what failed to match some teacher interviewees' expectations accentuated their misunderstanding of the ELTA program. A couple of teacher interviewees mentioned they had expected to see a native speaker of English as the ELTA initially. Though they definitely acknowledged the role of English used as lingua franca, one of these teachers insisted that the first/second graders should have learned English pronunciation with native speakers instead of any foreign students with accent. If this ELTA could not assist her in instructing phonics, it was unnecessary to have such an ELTA in her class, not mention that this ELTA was not a well-trained and experienced foreign teacher. This is actually a very harsh comment on a hardworking ELTA who tried hard and never seemed to satisfy this local teacher's request. However, the other teacher looked at the bright side of having a non-native English-speaking ELTA in her class. She confirmed this ELTA's great contribution to introducing cultural differences to her students as well as his dedication to actively interacting with the students in class; she even wished to continue their cooperation next semester. Another teacher interviewee commented on this kind of misconception. She explained that ELTAs had their respective strengths and limitations. Hence she focused on what could be treasured and made good use of the ELTA's advantages within the limited timings for her students' good. Her feedback can be viewed as a possible solution to prevent the future schools or teachers from stereotyping any ELTAs' nationalities.

Question 3

The third interview question is '*How did the Wenzao ELTA cooperate with you?*' In terms of planning lessons, one common problem mentioned by most of the teacher interviewees is the inadequate time to prepare for the lessons. If one ELTA works at one school for four hours a week, and if the school wishes to have more students to learn with this ELTA, it is expected that this ELTA remains in the classroom for four hours tops. If time must be spared for both

the ELTA and the local teacher to reflect on what was going on in class and what should be prepared for next week's teaching, fewer hours can be saved for the Taiwanese students. Therefore, for the sake of Taiwanese students, the teachers chose to discuss with the ELTAs on LINE in their free time. This decision might have resulted in some negative consequences. First, the message failed to be delivered explicitly and caused unnecessary misunderstandings. Second, the messages were not read on time to solve immediate problems. Third, it was not easy to explain one's teaching idea thoroughly by using texts in one's second language. Last but not least, sometimes the ELTAs missed the deadline set up and agreed on by both parties. All these consequences can deteriorate the quality of co-teaching practices in the classroom to a certain extent. Honestly, the local teachers, the ELTAS and the students are the victims.

In terms of in-class cooperation, many teacher interviewees mentioned that they and their ELTAs took turns to monitor students' learning in class. That means when the teacher was teaching, the ELTA was monitoring, and vice versa. This kind of cooperation corresponds to one of the six established co-teaching models, one teaching and one assisting. These six co-teaching models are (1) one teaching and one observing, (2) one teaching and one assisting, (3) parallel teaching, (4) station teaching, (5) alternative teaching and (6) team teaching (Hanover Research, 2012). One teaching and one assisting is adopted when one teacher presents the material to the class while another teacher is walking round the classroom to monitor student progress without obstructing the teaching flow. The level of planning required is relatively low compared to other co-teaching models. Many teacher interviewees mentioned they were responsible for teaching and asked the ELTAs to look after those who failed to catch up with the class or concentrate on the lesson. While the ELTAs were doing the activities with the students, the teachers helped check the students' understanding and assisted either the ELTAS or the students as needed.

Question 4

'*How did this ELTA interact with your students in class?*' was to explore how the ELTAs led discussions or did activities with the students in class. Some teachers pointed out that the inexperienced ELTAs were not very able to take the primary responsibility of teaching. In other words, they did not perform well in managing the class, simplifying the language when their students looked puzzled, or teaching in a more young-learner-friendly way. Solo teaching might be far above their current teaching competence. Hence they needed the local teachers' guidance to give the students clear instructions, adapt the activities and monitor the students' work. These responses were anticipated after they responded to Question 3.

What went beyond my anticipation was the response regarding interaction outside of class. Six out of the 14 teacher interviewees confirmed their appreciation of the ELTAs' active interaction with the students during the breaks. According to these teachers' observation, their students would like to have small talk with the ELTAs using simple English and some Chinese, greeting the ELTAs on the hallway, and even invited the male ETLAs to play basketball or jump the rope with them. In addition to in-class interaction, this kind of out-of-class contact is likely to build rapport between ELTAs and students and enhance learning outcomes. According to Pingree (2021), such outside-class interactions are far less structured and more diverse, which might form a less anxious relationship between the instructor and the student(s). As one-on-one interactions might not be always allowed during limited classroom time, this interaction can be extended and expanded to maximize the positive influence on students' learning outcomes to a certain extent. One of the teacher interviewee said, "(one foreigner teacher) … used to say the kids spoke good English. I know he didn't

refer to their English proficiency level but their attitude, being willing to interact with English." This is the attitude valued in the ELTA program. With their willingness to hang out with ELTAs in or out of class, Taiwanese students are likely to seek out opportunities to talk to foreigners in English and regulate their motivation to enhance their oral fluency and accuracy in the future.

Question 5

The fifth question is '*What might be the best part of having one ELTA in your class?*' In the interviews, the teacher interviewees gave a number of good comments on the existence of one ELTA in their class, and some corresponded to their expectations of the ELTA program mentioned earlier. Firstly, the ELTAs' presence created an environment in which the students used English as a vehicle. As the students realized that the ELTAs did not speak Chinese, neither their English teachers nor they could interact with the ELTAs in Chinese. This reality somehow weakened the students' reliance on their teachers or their first language. Likewise, the students could not expect to hear the ELTAs use the script listed in the textbook after class. By means of this opportunity, they could learn that language can be used spontaneously for the purpose of communication in the real world. This kind of language education is what EFL learners cannot learn from their textbooks in the traditional classroom. Secondly, when the ELTAs were the lead teacher for 10 minutes or so in class, the local teachers bought time to observe their students' behavior so as to support their learning in a more effective way. Without this assistance, normally the teachers needed to focus on their teaching and classroom management without confirming if everyone was on the right track or on the task. Alternatively, when the local teachers were the lead teacher in class, the ELTAs could walk round the classroom and see if anyone needed their further attention or assistance. According to the teacher interviewees, some ELTAs knew when and how to monitor the students' progress and responded to their respective questions or problems. On the other hand, some inexperienced ELTAs did not understand the monitor role they were playing and kept walking around.

Thirdly, the ELTAs strengthened the students' motivation for learning English. One teacher mentioned that her ADHD student initiated small talk and told the ELTA something about swimming once. Since then he shared his stuff with this ELTA from time to time, talked to the ELTA during the break and performed better and better in his vocabulary quiz. Because of this ELTA, the learning atmosphere in the classroom seemed different. According to some teacher interviewees, their students asked if they would see these ETLAs again next semester, which exhibited the students' great approval of having the ELTAs on campus. Another positive comment is related to the learning of different cultures in the classroom which corresponds to one of the responses discussed earlier. Hence those who had never gone any private language institutes to learn English or had no contact with foreigners at all could take advantage of this chance to expand their worldview. Moreover, these ELTAs came from different home countries and had different learning backgrounds. Some of them integrated their past learning experience into their teaching and in turn enriched the learning content. These are the privileges that Taiwanese teachers do not possess.

Question 6 & 8

The final three questions are to generate the teacher interviewees' suggestions which they would like to make on Wenzao, the ELTAs and the ELTA program. The sixth question, '*What suggestions would you like to make to Wenzao Ursuline University of Languages?*'

and the eighth question, 'What kinds of administrative resources do you think that the Bureau of Education, Kaohsiung City Government may provide you with?', are irrelevant to the topic of the current paper. Hence, the discussion of the two questions will be excluded from this section.

Question 7

'*What suggestions would you like to make to this specific ELTA?*' is to generate the teacher interviewees' comments on their ELTAs as some of the ELTAs continue working with the same Taiwanese teachers in the spring semester of 2021 academic year. The constructive comments are likely to help these ELTAs fine-tune their teaching. The first similarity in most of the teacher interviewees' responses is their acknowledgement of the ELTAs' contribution to and involvement in the Taiwanese students' language use and language learning in class or on campus. In addition, all of the teacher interviewees suggested that the ELTAs receive more teacher training sessions in terms of pedagogical content knowledge, materials preparation, developing worksheets, creative activity design, word choice and so on. This similarity corresponds to their feedback on Question 6. Likewise, the teacher interviewees requested more time to prepare for lessons with their ELTAs in person at the school, which was mentioned somewhere earlier. The teachers opted for more of the ELTAs' hours spent in the classroom at the expense of discussing with the ELTAs face to face. In order not to occupy classroom time, the teachers and their ELTAs contacted each other online after work. Unfortunately, the quality and quantity of their interactions were not satisfying and affected the ELTAs' teaching performance in class. Before any ELTAs can work independently, they need to be supervised by experienced Taiwanese teachers. Without constant guidance and communication for the purpose of mutual understanding, ideal cooperation is less likely to take place. Complaints made to the ELTAs about their teaching or classroom management skills seem to be a natural consequence.

Suggestions and Conclusion

The first-year ELTA program will finish in July 31, 2022. From then on three ELTA headquarters (i.e. North Center, Central Center and South Center) and the local governments will go hand in hand to recruit more part-time quality ELTAs to provide a rich and diverse English learning environment for students in Taiwan's public primary and junior high schools. The ultimate goal of this ELTA program is to offer Taiwanese students the opportunities to improve their English language skills and global awareness in an enriched and immersive environment to supplement the Bilingual 2030 Policy. By carrying out the current study, a couple of constructive suggestions can be made on the execution of the ELTA program according to the research findings presented above. First of all, even though the shortlisted applicants must attend the 18-hour pre-service training sessions before they can be assigned to local schools, most of them still have limited experience of teaching English or being an English language teaching assistant. In the classroom they might not be very able to co-teach with Taiwanese teachers, manage the class, monitor student progress, grade language, provide learner-friendly instructions of interactive activities, assess Taiwanese students' learning, make immediate adjustments to accommodate Taiwanese students' needs or teach independently. Likewise, Taiwanese teachers might need to develop their awareness of co-teaching models, how supervise ELTAs, and read the job descriptions of ELTAs carefully in order not to overestimate ETLAs' teaching competency. Otherwise, Taiwanese teachers might get either disappointed or overwhelmed by having one ELTA in their class. It is suggested that workshops or forums can be held regularly for both parties so as to strike a

balance between teaching and co-teaching. Everyone in the classroom can stay on the same page about what they can do to help Taiwanese students.

Secondly, the flexibility of arranging ELTAs' working hours need to be taken into account too. As the interview findings suggested, the teachers needed more time to discuss how to teach and what to teach with the ELTAs. According to the official website of ELTA Program, "ELTAs are expected to work on an average of 4 hours per week at each school. The exact working hour per week depends on the negotiation between the assigned schools and ELTAs." As long as more ELTAs can be recruited to serve all Taiwanese students in public primary and junior high schools by 2030, teaching hours and discussion time can be managed equally to achieve mutual satisfaction between Taiwanese teachers and their ELTAs. As for ELTAs' job roles, they can be English summer/winter camp leader, thematic lesson teaching assistant, English conversation partner, English competition trainer, club activity leader, and others. ELTAs not only serve as assistants in the classroom but other roles in different forms of activities. Lesson planning and teaching preparation hopefully can be completed in advance.

To sum up, the current interview study has generated insight into the actual execution of the first-year ELTA program from the perspective of the Taiwanese teachers. A better idea of who ELTAs are, what they can do, what they might need, what they shall know, and so on has been developed. With such insight, those who have been or will be involved in the program can be better able to anticipate the pros and cons of recruiting ELTAs and having ELTAs in class. In addition, mutuality has been nurtured during the process of executing the program. Both Taiwanese teachers and ELTAs have their respective needs. and both sets of needs matter. When keeping this awareness in perspective, both parties might be able to convey their own needs in a clearer fashion that increases the likelihood to meeting their expectations. Such mutuality can let anyone involved in the program factor different needs into their decisions to achieve a win-win situation. On top of that, either Taiwanese teachers, the administration team, or ELTAs can regulate emotion and maintain commitment to the job and focus on the task at hand especially when nothing might take place on the right track from the beginning.

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Docs in EAP Courses: Investigating and Promoting Collaborative Writing Experience

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Abstract
Currently, technologies are widely used in education as they are important for assisting language teaching and learning. There are several technologies that can be integrated into language learning and teaching to improve students' writing skills. Google Docs is a tool that allows students to work collaboratively and develop their skills. Various studies have been done to identify students' perceptions and views of using Google Docs in their writing, its effectiveness in collaborative writing, and also how it can be used to encourage student participation. This study investigates the effectiveness of using Google Docs in English for Academic Purposes (EAP) writing class and identifies possible challenges in further promoting students' writing skills in their collaborative writing. In this qualitative study, 64 students of the University of Finance and Economics participated in a survey after using Google docs in their writing classes. The findings showed that students felt comfortable using Google Docs due to its accessibility, availability, and advantages. It helped them improve their writing skills by interacting with others and learning from each other. However, students commented that possible challenges such as equal participation, the uncertainty of roles, and clarity of instruction should be considered further to be more productive and practical. Based on the results, we made several suggestions and recommendations to minimize the challenges and make students more comfortable when producing collaborative writing.

Keywords: Google Docs, Collaborative Writing, Online Writing Tool, Collaborative Learning

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Introduction

Technology is essential in the English language classroom since innovative teaching methods are connected with the use of internet technologies. Because of its popularity and accessibility, Google Docs is one of the devices that can be used to promote students' writing (Abrams, 2019). Additionally, as Suwantharathip and Wichadee (2014) mention in their research, Google Docs is an essential tool that enables for an online learning experience. Students at the University of Finance and Economics, Mongolia, have gained knowledge through online courses and the use of various online tools and platforms. As for language learning, digital technologies are widely used in students' learning as well, so they have experience in using multiple online tools. Additionally, following the pandemic, when students have experienced taking classes online, the University of Finance and Economics modified its curriculum to allow students to have their classes both in-person and online. Following this modification in their lesson mode, students are required to complete their assignments and tasks both in-class and online, which requires expertise with online tools, one of which is Google Docs. Google Docs is one of the handiest tools for students to submit their individual writing assignments and share their files. However, students have no experience using it in collaborative writing, which enables them to produce more developed writing and promote their social and language skills. Collaborative learning is a teaching and learning approach in which groups of students collaborate to solve a problem, accomplish assigned tasks and produce a product. Collaboration is a concept of interaction and individual lifestyle in which individuals are accountable for their activities, including learning and respecting their group members' abilities and contributions (Laal & Ghodsi, 2011). Therefore, this study aims to investigate students' opinions and comments on using it in EAP course collaborative writing and find ways to promote collaborative writing through this online platform. The research questions were:

1. What are the students 'experiences and impressions of using Google Docs in their EAP classes?
2. Can Google Docs be used in EAP courses to improve students' writing and social skills?
3. What challenges do students face when using Google Docs?
4. Can Google Docs promote collaborative learning?

In this research, students participated in collaborative writing tasks using Google Docs before answering closed and open-ended survey questions regarding their experience including its usefulness and challenges.

Literature Review

Looking at the literature review, there have been various studies on Google Docs for collaborative writing, its usage, effectiveness, and drawbacks. Sa'diyah and Nabhan (2021) conducted research on the benefits and challenges of using Google Docs in collaborative writing. They concluded that this tool improves students' digital skills, social skills, and learning motivation. Students could use Google Docs to comment on each other's work, share ideas, and revise their work in order to improve their writing and learn from each other (Afdaliah, Uswatunnisa, & Marliana, 2019; Metilia & Fitrawati, 2018). Literature also indicates that Google Docs is an effective tool for improving students' writing and social skills as it allows students to collaborate for creative writing (Perry & Rangu, 2020). Furthermore, research indicates its positive results such as improving writing structure,

content and student performance . According to Alwahoub, Azmi, and Halabieh's (2020) study, students' writing skills can be improved with Google Docs, explicitly improving not only their writing's organization, structure, and content, but also their performance and skills. Khoiriyah (2021) states that collaborative writing enables students to improve their writing and produce developed writing through online collaboration by receiving feedback from teachers and sharing ideas with group members. Moreover, when comparing online collaborative writing in Google Docs to face-to-face writing, Moonma (2021) concludes that Google Docs promotes collaboration, reduces student nervousness, and offers corrections for students' grammar errors. In terms of teacher and student interaction, students feel comfortable communicating and interacting with their teachers or lecturers and gaining new experiences when using Google Docs in writing (Hidayat, 2020).

Apart from the effectiveness, literature reports tha there are some challenges associated with utilizing Google Docs. According to Zhou, Simpson, and Domizi (2012), educators and teachers should be aware of both benefits and challenges when using Google Docs in their teaching to achieve better outcomes. Even though the advantages outweigh the disadvantages, many issues such as regular internet connection, technology availability, digital skills (Sa'diyah, & Nabhan, 2021), and grading of students' participation and contribution have been identified. Regardless of these difficulties, as recommended in Woodrich and Fan's (2017) study, current and future teachers should embrace technologies to promote student language learning and encourage their students. Moreover, as Zhou, Simpson, and Domizi (2012) summarize, today's students prefer doing out-of-class collaborative work and assignments through technologies such as e-mails or other online meeting tools rather than face-to-face meetings. Furthermore, Google Docs is a tool that connects teachers and students regardless of time and location allowing students to interact with their peers (Hidayat, 2020) and improving the quality of group collaboration (Brodahl, Hadjerrouit, & Hansen, 2011). As a result, Google Docs is an indispensable tool for students learning, particularly when it comes to collaborative writing.

Research Method

This study was conducted at the University of Finance and Economics, and it is qualitative in nature. The participants were mostly in their first year of university academic year, studying EAP courses. As the students have prior experience using Google Docs for individual assignment writing and submission, students were not taught how to use Google Docs but how to use it in collaborative work. Students were instructed to create a file on Google Docs, invite teachers to monitor their participation and progress, and work with group members on the given writing task. After their submission, a qualitative approach was used through a survey to explore students' views and experiences after using Google Docs in their collaborative writing and investigate ways to use this tool to encourage their collaborative work. Students were directed to use this platform to produce collaborative writing both in class and out of class and they were asked to use its functions as much as possible, specifically the comment section, to encourage participation and contribution to the writing process. Students were asked to paraphrase complex sentences together as paraphrasing is a challenging task to avoid plagiarism, and it requires different techniques. Collaborating on Google Docs enabled them to share their ideas on paraphrasing and explored various paraphrasing techniques working together. The paraphrased sentences were better than the sentences they worked on individually proving are effective. After students experienced this collective writing process, they completed a 13-question survey, as shown in Table 1, regarding their experience, its advantages, and difficulties. The survey result showed that all

students' comments were positive and had high average scores despite some challenges. The following are the survey questions (see Table 1) used to answer the research questions.

	GOOGLE DOCS STUDENT SURVEY
1.	Is Google Docs accessible and available to you?
2.	Did you have any previous experience using Google Docs before?
3.	Were you familiar with the different functions in Google Docs?
4.	Could you use the various functions on Google Docs comfortably?
5.	What was your first impression when using Google Docs in your collaborative writing?
6.	How handy was it in improving students' writing skills?
7.	Could Google Docs influence a group's collaborative experience positively?
8.	What challenges do you have when using Google Docs in your collaborative writing?
9.	Could students participate equally in collaborative writing?
10.	What do teachers need to consider to provide equal opportunity to every student?
11.	What advantages did you have when using Google Docs?
12.	I would enjoy using Google Docs for my writing assignments in the future (rate)
13.	What did you think specific skills students need to develop in collaborative writing?

Table 1: The survey questions from EAP course students

Findings and Discussions

Students' experiences and impressions of using Google Docs in collaborative writing. The responses to the survey questions were carefully analyzed. The result showed that students feel optimistic about using Google Docs in their collaborative writing as the percentages were high on average, and the comments were positive. The first four were closed questions regarding their access to Google Docs, their comfortability of using it, and its different functions.

Figure 1: The survey question from EAP course students

As we can see from the above graph, students answered that it is generally available (100%) as it is a well-known online platform.

Did you have any previous experience using Google docs before?   Were you familiar with the different functions in Google Docs?

Figure 2: The survey questions from EAP course students

Of the sixty-two students who participated in the study, 82.3 percent had previous experience using Google Docs and were familiar with its different functions while 17.7 percent of the students answered that they had no previous experience of using this tool.

Could you use the various functions on Google docs comfortably?
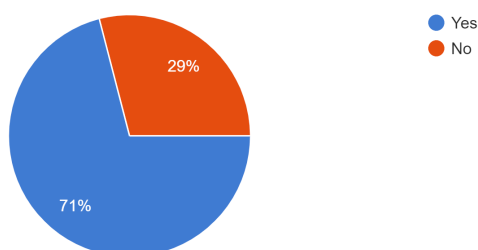
Figure 3: The survey questions from EAP course students

Typically, students feel comfortable as it is available and accessible, and its tools are familiar to them.

How handy was it to improve students' writing skills?   Could Google Docs influence group's collaborative experience positively?
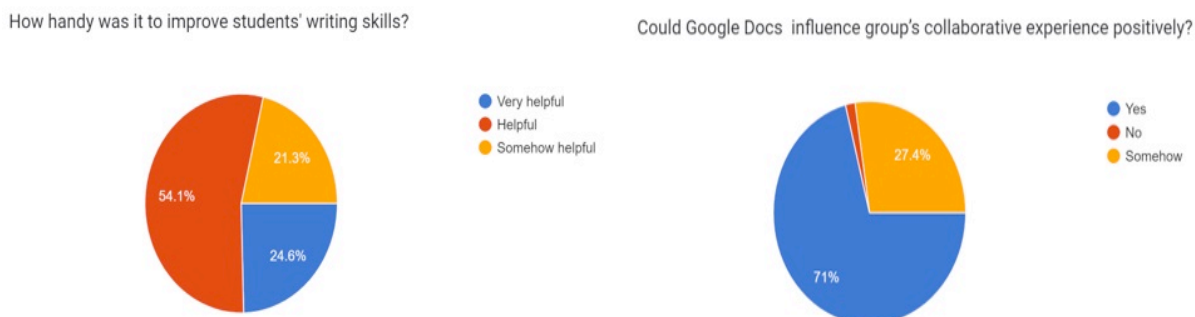
Figure 4: The survey questions from EAP course students

Among all the participants, 78.7 per cent indicated that Google Docs was beneficial in improving their writing skills, and only 21.3 percent of the students thought it was somehow helpful. From the pie chart, it is clear that the majority of the students believe that Google Docs positively influenced the group's collaborative experience.

However, some students had difficulties communicating using the comment section and sharing ideas openly. As for the first impressions of using Google Docs, most of the comments were positive, mentioning its advantages such as encouraging, collaborative,

engaging, time-saving, and most importantly, its efficiency in promoting teamwork. For instance:

> Student: It was easy to use because everyone's writing was visible to everyone.
> Student: Some ideas overlapped. But it was practical to share ideas.
> Student: It saved a lot of time because it was written and edited simultaneously.
> Student: Easy to use and pleasant to work with classmates.
> Student: It was nice because I like working in a good team.

Besides the positive comments, clear instructions and sufficient time were recommended in relation to their first impression, which would result in the completeness of their work:

> Student: It was my first time experiencing collaborative writing. So, it was a little complicated, and the time limit was insufficient.
> Student: Not really used to it at first.
> Student: A little bit complicated.
> Student: Hard to understand each other
> Student: At first, it seemed confusing to use, but later I got used to it.

Challenges that students face when using Google Docs on writing:
Even though students found Google Docs to be effective in their group work, they mentioned some barriers in the survey. Regarding the challenges, some students stated the problems of accepting each other's' ideas and decisions on the final production in their collaborative work. For example, to the question, *"What challenges did you have when using Google Docs in your collaborative writing?"* students answered as follows:

> Student: When using Google docs in our collaborative writing, I faced the problem of my ideas not being accepted by the other members.
> Student: It took a long time to write together, come up with some ideas, and make a final decision.

Another challenge identified from the students' survey was equal participation, as their roles were not clarified and specified clearly. Some students, whose language skills were higher than others, had a more active role in their writing, leaving other students' contributions and ideas ignored:

> Student: Practice beforehand and give good instructions
> Student: Equal distribution according to ability
> Student: Give information promptly.
> Student: Recognize the characteristics of each student
> Student: They need to assign the task and explain that task to the students clearly.

Even though students had previous experience utilizing Google Docs before in their writing assignments, working collaboratively on it was a new experience for them. So, teachers need to be clear in their instructions on how to use this tool in collaboration and assign every student's role taking students' participation and skills into consideration. As Lawrence and Lee (2017) mention, teachers' instruction is critical, particularly for students with lower proficiency.

Concerning the skills that students should develop before working on Google Docs for this task, students mentioned the ability to work in teams online, be comfortable using chat or comment sections, contribute equally by making suggestions, manage their time effectively, and have good prior experience in paraphrasing. Students 'comments were as follows:

> Student: Learn to use tools like chat to communicate with each other.
> Student: Should be able to work in teams in an online environment.
> Student: Everybody has to make sense of and understand their roles.
> Student: Develop the ability to talk to each other, share ideas, and express themselves openly.
> Student: Should be familiar with different paraphrasing techniques.
> Student: Participate equally, contribute and be responsible.

Conclusions and Further Considerations

Based on the review of the literature as well as their students' experiences and perceptions, the authors conclude that Google Docs is an essential tool for developing students' writing performance. Our survey result showed that students were comfortable using Google Docs in their writing due to its advantages such as accessibility, familiarity and collaborative opportunities. Fewer students mentioned some challenges with instructional clarity, equal participation and individual student contributions. However, the authors consider that this study has limitations that further research needs to address. Firstly, the collaborating writing task was assigned when the students did not fully have prior experience using Google Docs in collaboration. Secondly, as students were not fully aware of their roles, assessing their contribution and improvement was challenging. Future research is essential to measure students' progress by allowing them to practice group writing several times during in-class activity until they comfortably use this tool. From the participant students' perspectives, Google Docs is defined as a handy tool in collaborative writing. This study concludes that students feel comfortable using Google Docs collaboratively due to its numerous advantages, such as its availability, editing, commenting options, idea sharing, and collaborative learning opportunities. However, teachers need to be conscious that collaborative writing takes a lot of time to connect through the online system and produce a final paper that considers each group member's ideas and feedback. Also, when assigning group writing, teachers need to consider equal participation of group members by giving clear instructions, defining group members' roles and responsibilities, and allowing them to be familiar with their tasks to complete them comfortably.

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Teachers' Readiness Assessment on Teaching HIV/AIDS Preventive Education to Senior High School Students – Philippines

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Abstract

The Department of Health (DOH) reported that HIV/AIDS cases among adolescents aged 15-21 in the Philippines are rapidly increasing. In this correspondence, the Department of Education (DepEd) has joined forces with the DOH and the Commission on Population and Development (POPCOM) to launch a government-wide response to reproductive and healthcare-related issues among the youth, which included the introduction of the Comprehensive Sexuality Education (CSE). This novel research assessed the readiness for CSE implementation in the context of HIV/AIDS preventive education for Senior High School (SHS) students from a teacher's perspective in the Philippines. It also evaluated the current curriculum and policies for the implementation of a contextualized CSE. Through a case study design, data were gathered utilizing semi-structured online and limited face-to-face interviews with SHS teachers at a Roman Catholic parochial co-educational institution in Manila, Philippines. These assessment interviews probed on the biggest barriers to incorporating the CSE curriculum into a teacher's instructional modalities, as well as how teachers can overcome these obstacles. The researchers also explored the interventions needed for the implementation of CSE, as well as the impact of teaching HIV/AIDS preventive education to SHS students from a teacher's point of view. Results were analyzed thematically drawing upon the sociological theory of structural functionalism. They are expected to shape the future of education in contextualized CSE and its implementation and continue the fight against the HIV/AIDS epidemic and its associated stigma and discrimination in the Philippines.

Keywords: HIV, AIDS, Sex Education, Comprehensive Sexual Education, Senior High School, Philippines, Teacher, Pedagogy, Praxis

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Introduction

The Philippines is currently facing the fastest-growing HIV epidemic in Asia and the Pacific region by accounting for a 237% increase in annual new HIV infections from 2010 to 2020 and a 315% increase in AIDS-related deaths during the same period, according to the Department of Health (DOH 2021, Table 1). Although national HIV prevalence remains below 0.1%, the DOH expects that the estimated number of Filipino people living with the virus will triple by 2030 and expand to over 330,000 in the next several years if the Philippines sustains its rapid increase in new infections. Most of the HIV transmissions recently recorded are linked to the considerably low usage of condoms and other contraceptives, especially among the younger age groups (DOH, 2020). Of the 82,865 documented HIV cases from January 1984 to December 2020, 3,562 (4%) were 19 years old and younger at the time of diagnosis. Of these cases, 221 were children less than 10 years old, 28 were 10-14 years old, 496 were 15-17 years old and 2,817 were 18-19 years old. In the last ten years, the DOH said that the percentage of HIV cases in the 15-24 age group has almost doubled, from 17% from 2000 to 2009 to 30% from 2010 to 2019. Additionally, 699 of the 4,574 documented HIV-related deaths from January 1984 to December 2020 were males and females aged 24 and younger.

Table 1. Profile and deaths related to HIV in the Philippines

Demographic Data		December 2020	January – December 2020	January 2015 – December 2020	January 1984 – December 2020
Total reported cases		1,076	8,056	60,411	82,865
Advanced HIV infection		198	1,623	8,846	10,888
Male		1,017	7,624	57,480	77,821
Female		59	434	2,931	5,033
Age range		2-74	1-78	1 month-79	1 month-82
Median range		28	28	28	28
Age groups					
	<15 y/o	6	32	179	249
	15-24 y/o	273	2,241	17,862	23,733
	25-34 y/o	579	4,071	30,782	42,069
	35-49 y/o	199	1,480	10,105	14,532
	50 y/o & above	19	234	1,480	2,209
Reported pregnant		13	105	449	495
Reported deaths		51	846	3,513	4,574

Source: Department of Health's HIV/AIDS and ART Registry of the Philippines

In this regard, the Department of Education (DepEd) in the Philippines has partnered with the DOH and the Commission on Population and Development to roll out a government-wide response to reproductive and healthcare-related issues among the youth (DepEd, 2018). Subsequently, former Philippine President Rodrigo Roa Duterte signed Executive Order 141 in 2021 to prioritize the mobilization of government agencies and the community in establishing interventions for the implementation of CSE (Malacañan Palace, 2021). The *DepEd Order No. 31 s. 2018* seeks to curb the increasing incidences of early pregnancy, HIV cases, and other healthcare-related issues among Filipino children and adolescents through the creation of a common understanding of *Comprehensive Sexuality Education* (CSE). Currently being piloted in regions 1, 7, and 11 as mandated by the *Responsible Parenthood and Reproductive Health Act of 2012*, the DepEd Order No. 31 s. 2018 intends to ensure the proper implementation of CSE protocols in all public and private elementary, junior and senior high schools, learning centers for Special Education and Alternative Learning Systems, and laboratory schools of state and local universities and colleges. As part of this policy, teachers are expected to integrate CSE into five subjects: Music, Arts, Physical

Education and Health; Science; *Edukasyon sa Pagpapakatao* (Human Ethics)*; Araling Panlipunan* (Social Studies); and Personality Development. The DepEd defined CSE as a curriculum-based process of teaching and learning that is anchored on cognitive, emotional, physical, and social aspects of sexuality. It will be delivered in a scientific, age- and developmentally appropriate, culturally and gender-responsive, and with a rights-based approach. Additionally, the DepEd indicated the implementation of CSE will involve parents-teachers-community associations, school officials, civil society organizations, and other interest groups.

The inherent importance of the implementation of CSE has prompted researchers to probe its role from various perspectives and reviewed other relevant topics, such as its impact on students. Gallao et. al. (2020) explored the extent of Cumulative Sexual Education information obtained by government senior high school students and its effects on their sexual behavior and opinions, while Virtucio & Villafuerte (2020) focused on the influence of age, sex, and education strand on the knowledge on HIV/AIDS among SHS students. Correspondingly, Lucero (2018) stated that there is a substantial difference in the level of awareness and attitude of SHS students before and after conducting a health promotion program focusing on HIV and AIDS.

Meanwhile, other researchers delved into the barriers to the implementation of CSE and debunked common misconceptions about them. La Bella (2014) described the opposition of the Catholic church, students' readiness, and parents' receptiveness as the biggest barriers to CSE implementation. Since the start of the 1990s, the Catholic Bishop's Conference of the Philippines has continued its campaigns against legislation to expand condom access and issued personal attacks to government officials who lobbied for public sexual health education on the basis that these initiatives could promote promiscuity (Conde, 2016). With support from conservative politicians and political parties, CBSP believes that it is the parent's task and not the teachers' to explain sex and relationship to their children, and that teaching sex education in schools will only result in unintended consequences (McGeown, 2010). However, Baldo et. al. (1993) argued that sex does not lead to earlier or increased sexual activity among the youth.

In terms of their readiness, La Bella (2014) also indicated that students and other key informants from across all ages, sex, socioeconomic status, and religion from Manila, Quezon City, and Biñan, Laguna are positive when it comes to integration of sex education in the Philippine primary and secondary public school system's curriculum. Parental involvement will also be playing a pivotal role in CSE implementation (Daria & Campbell, 2004; Dwyer et. al., 1998) because the parents' behaviors and parenting practices will influence their children's health behaviors and decisions (Meschke et. al., 1999). More specifically, children's risky behaviors will be impacted by parenting style, parents' family management skills, as well as the quality of parent-child relationships. Correspondingly, Cabreros (2012) mentioned that most parents from grade schools in Metro Manila see sex education as a significant subject for school children and concurred that it should be integrated into academic curriculums. The result of this research is particularly important because issues relating to the implementation of CSE go beyond school-based limitations (Finger, 2000, as stated in Cabreros, 2012).

However, the success of implementing CSE would still depend on teachers' knowledge, skills, and attitudes that determine students' responses and actions toward the initiative (Finger, 2000, as mentioned in Cabreros, 2012; Haignere & Culhane, 1996). Because of the

pivotal role that teachers are playing in CSE implementation, as well as the lack of attention given to them by previous studies, this research explored their readiness for CSE implementation in the context of HIV/AIDS preventive education for SHS students. More specifically, this study evaluated the current curriculum and policies in the implementation of HIV/AIDS preventive education through the perspectives of SHS teachers in the Philippines.

Methods

-   Research Design

A qualitative case study method was employed to identify topics on the readiness of teachers when it comes to the implementation of HIV/AIDS preventive education for SHS students. It is also to inquire into and authenticate these subjects.

-   School Profile and Research Respondents

Saint Anthony School is a Roman Catholic parochial educational institution and a private co-educational institution established in 1936. The school implements the K-12 curriculum mandated by the DepEd and is located in Singalong St., Brgy. Malate, Manila, National Capital Region, the area reported the greatest number of confirmed HIV diagnoses from January 1984 to December 2020 with 31,058 (38%) cases (DOH 2021).

Region	December 2020 (National Rate: 1,076)	January – December 2020 (National Rate: 8,058)	January 2015 – December 2020 (National Rate: 60,411)[b]	January 1984 – December 2020 (National Rate: 82,862)[c]
National Capital Region	300 (28%)	2,485 (31%)	21,000 (35%)	31,058 (38%)
4A	136 (13%)	1,372 (17%)	9,851 (16%)	12,705 (15%)
3	90 (8%)	1,065 (13%)	6,365 (11%)	8,179 (10%)
7	281 (26%)	552 (7%)	5,114 (8%)	7,138 (9%)
11	24 (2%)	331 (4%)	3,188 (5%)	4,513 (5%)
Other regions	245 (23%)	2,253 (28%)	14, 891 (25%)	18,134 (22%)

[a] 9,518 (31%) cases had no data on self-identity at the time of HIV testing
[b] No data on region of residence for 2 (<1%) cases
[c] No data on region of residence for 1,138 (1%) cases

Source: Department of Health's HIV/AIDS and ART Registry of the Philippines

Table 2. HIV cases by region in the Philippines

Respondents consisted of randomly selected teachers specializing in Music, Arts, Physical Education and Health, Science, *Edukasyon sa Pagpapakatao* (Human Ethics)*, Araling Panlipunan* (Social Studies), and Personality Development, which are the five subject areas that the DepEd wants to integrate CSE in its nationwide implementation. Out of the 25 teachers from Saint Anthony School, only 8 of them were able to participate in this study.

-   Data Gathering and Analysis

Data were gathered through semi-structured interviews. They were mostly conducted via video conferencing applications such as *Zoom*, *Facebook Messenger Rooms*, and *Google Meet* or through an online questionnaire using *Google Forms* due to the rules and restrictions still imposed by the COVID-19 pandemic. Most of the interviews were done during the weekends and some during the teachers' free time on weekdays. To invite additional participants for this study, the authors also personally visited Saint Anthony School to

conduct face-to-face interviews concerning the educational institution's COVID-19 health and safety protocols.

The structure of the interview is segmented into three primary parts. The first few questions centered on teachers' perspectives on the current CSE curriculum of Saint Anthony School, as well as its enacted policies for the implementation of CSE in the context of HIV/AIDS preventive education. The second set of questions focused on assessing the readiness of teachers on teaching topics related to HIV/AIDS. In particular, the researchers probed on the perceived barriers to incorporating HIV/AIDS preventive education into the lesson plans of teachers at Saint Anthony School, and how they can overcome these obstacles. The final part of the interview focused on the interventions required to improve the readiness of teachers in teaching HIV/AIDS preventive education, as well as on their perceived impact of educating their SHS students on such knowledge domain.

The results of the interviews were transcribed and analyzed using thematic analysis methods. Furthermore, structural functionalism was adopted to analyze and authenticate the validity of analyzed themes on teacher readiness for teaching HIV/AIDS preventive education. Structural functionalism sees education as a crucial and essential institution that serves to provide several benefits or functions to society such as socialization, social placement, as well as social and cultural innovation.

Results and Discussion

The results of the research are specifically subdivided into three themes drawing upon the questions provided by the researchers to the study population. Additionally, each theme will be followed by a discussion to allow the researchers to fully evaluate and validate their authenticity.

1.   Current CSE curriculum in the context of HIV/AIDS preventive education for SHS students and its implementation policies

Teachers revealed that Saint Anthony School's current academic curriculum does not include or has not yet included propositions mandated by the DepEd Order No. 31 s. 2018, which intends to integrate CSE in Music, Arts, Physical Education and Health, Science, *Edukasyon sa Pagpapakatao* (Values Education), *Araling Panlipunan* (Social Studies), and Personality Development subjects among SHS students in the Philippines. As they are still not mandated by their educational institution, the SHS teachers said that they have not integrated CSE in any of the subjects they are teaching to their students, including specific concepts and topics pertinent to the prevention of HIV/AIDS. Some teachers elaborated that their school has not yet instructed them to integrate CSE in their lesson plans because their educational institution is still following the DepEd's basic education curriculum, which is only focusing on teaching students the basics of reading, writing, arithmetic, science, and patriotism. These same teachers added with an uncertainty that the integration of CSE, especially in the context of HIV/AIDS preventive education, is only or currently required in senior high schools within colleges and universities.

Consequently, the teachers indicated that their school has no policies currently in place for the implementation of CSE in the context of HIV/AIDS preventive education for SHS students. Thus, there is no clear indication of whether they are permitted or not to incorporate topics about HIV/AIDS in their lesson plans.

The teachers also showed a lack of awareness of the implementation of CSE. Some of them are not informed about DepEd's cooperation with the DOH and POPCOM to create an action plan to address reproductive and healthcare-related issues among the youth, which included the implementation of CSE in public and private elementary, junior and senior high schools, as well as other educational institutions in the Philippines. One teacher attributed this lack of awareness of the implementation of CSE to their school's Christian faith formation. While others have heard or read about the DepEd Order No. 31 s. 2018 before social media, most teachers are not yet fully familiar with or lack relevant information about the memorandum, especially as to where it is currently piloted, when it be enforced in the National Capital Region, and how it will take effect in their school.

2.   Readiness of teachers to teach HIV/AIDS preventive education to SHS students

Most of the teachers expressed readiness to integrate CSE in their lesson plans, as well as willingness to teach concepts related to the prevention of HIV/AIDS. While some also expressed ambivalence when it comes to their confidence and authority to teach sensitive topics, they all agreed that a critical component to their readiness in teaching HIV/AIDS prevention education to their SHS students is preparation and planning. According to the teachers, they need to identify the learning objectives before they integrate the CSE curriculum in the context of HIV/AIDS preventive education into their respective lesson plans. One teacher mentioned, "this matter must be presented first to the faculty and all instructor(s). Afterward, through collaboration among the coordinators and teachers, we will devise strategies on how to integrate it into our curriculum implementation." Generally, the teachers believe that an effective and efficient learning objective will describe what their students are expected to learn and how will they apply those learnings in the future rather than just what their students will be exposed to during classes. The teachers also emphasized the importance of identifying the specific learning activities that would expose their students to relevant information regarding the prevention of HIV/AIDS.

The majority of the teachers agreed that time management is an important factor to consider when identifying learning activities to provide each topic the appropriate attention they need and to allow students to fully understand concepts that they are not familiar with. Teachers must also allocate extra time for extended explanation or discussion, especially if students are having a hard time understanding a complex concept. By allocating appropriate time to each topic, most of the teachers believe that it will help them avoid "watering down" the importance of a particular topic related to the prevention of HIV/AIDS. Lastly, the teachers concurred that they must assess student understanding, by giving them quizzes and practical tests or examinations. They believe that these assessments would allow their students to demonstrate their new knowledge and skills as stated in the learning objectives. Assessments will also allow teachers to offer additional coaching and mentoring that can guide further learning for their students. Some of the teachers also mentioned that assessment can provide them with an idea if their lesson plans and instructional modalities are successful or not.

Moreover, teachers have recognized religion as the biggest barrier to adopting the CSE curriculum and teaching HIV/AIDS preventive education to their SHS students. Since their educational institution is primarily Roman Catholic, almost all the teachers are concerned about preserving their school's conservative core values, as well as on how they would approach the topic of HIV/AIDS with added sensibility and sensitivity in comparison to schools that are not affiliated with a religious organization. One teacher said teaching HIV/AIDS preventive education "is a worldwide issue and the church needs to be involved to

prevent future moral dilemma." Several teachers have also highlighted students' readiness to receive HIV/AIDS preventive education as they might still not have the same maturity as those students at the tertiary level to understand sensitive topics and concepts. Few teachers are also perplexed as to how teaching HIV/AIDS preventive education will impact their students who came from a more conservative background and with still naïve attitudes. Parental receptiveness is also seen as an obstacle to embedding the CSE curriculum in the context of HIV/AID prevention into the core SHS subjects. Several of the teachers expressed fear and anxiety as to how parents will react if they learn that their children are receiving HIV/AIDS preventive education, especially those with traditional or old-fashioned thinking. Almost all the teachers said that they are afraid that parents might blame them if something bad happens to their children and if parents will accuse them of corrupting their children's characters, as well as "perverting" their behavioral patterns on sex and human relationships.

When it comes to overcoming barriers in teaching HIV/AIDS preventive education to their SHS students, many of the teachers underscored the significance of having an open mind. One teacher elaborated that open-mindedness would provide her with some "creative freedom" to create new strategies in teaching sensitive topics relevant to HIV/AIDS. An open mind will also allow teachers to fully understand and analyze HIV/AIDS-related topics and concepts that they might not be particularly interested in, according to some teachers. They emphasized that teachers must first be able to establish the importance of teaching HIV/AIDS education within themselves because it is the only way they can successfully fulfill DepEd's CSE implementation. Apart from open-mindedness, subject matter knowledge, and teachers' ability to establish a supportive and safe learning environment among their students. Additionally, some teachers noted that students nowadays are very "sensitive" and that they can easily feel if their teachers are not confident in the topics they are teaching. They added that a teacher's impartiality in his or her lesson plans and instructional modalities will negatively affect students' learning ability and their capacity to respond and react to sensitive topics tackled in HIV/AIDS preventive education.

While others shed a light on the important qualities a teacher must have in teaching HIV/AIDS preventive education, several teachers highlighted the importance of opening a dialogue or creating conversations regarding gender and sexuality to create a common understanding of their definition. Several of them have also suggested social studies teachers intensify the teaching of gender and sexuality among their students and then connect the impact and importance of these two talking points to the issue of HIV/AIDS. By introducing these key points first, one teacher explained that "we can ensure that we are doing our job as teachers slowly but surely." Another teacher elaborated that bringing in discussions about sexuality and gender will ensure students will not be surprised as they tackle more sensitive topics about HIV/AIDS. Furthermore, several teachers see the significance of "normalizing" discourse on syphilis, gonorrhea, chlamydia, and other sexually transmitted infections (STIs) as they too are still "taboo" topics much like HIV and AIDS. Alongside parental guidance, teachers said that it is their responsibility as second parents of their students to make them feel safe and secure when asking questions about sensitive topics and concepts associated with the prevention of HIV/AIDS or other STIs.

Concerning fostering open-mindedness, confidence, a sense of authority, and credibility, as well as promoting the practice of favorably perceived norms, all teachers agreed that several interventions are needed in the implementation of CSE, especially in the context of HIV/AIDS preventive education. They all shared a similar perspective on the importance of the unification of parents, students, and the school to avoid "awkward treatment" on this

matter. One teacher stated that all stakeholders must reach a consensus to assure the effectiveness and appropriateness of subject matters and messages that will be integrated with the lesson plans for teaching HIV/AIDS preventive education. Another teacher noted that parent-teacher meetings could be conducted to talk about updates regarding student learning and review feedback on instructional modalities.

Additionally, some teachers accentuated the significance of government intervention in the integration of HIV/AIDS preventive education into the lesson plan. They believe that DepEd should encourage community participation in the creation of a new lesson plan for students. One teacher suggested schools partner with their local government units or DOH-accredited HIV/AIDS treatment hubs and clinics to improve the knowledge and awareness of students on the topic of HIV/AIDS. The same teacher also said that schools should allow DOH-accredited civil society organizations and other DOH-recognized non-profit organizations such as Love Yourself Inc. to conduct HIV testing and counseling for students from time to time. Screenings for other sexually transmitted infections should also be permitted by schools if they are conducted by organizations with accreditation from DOH to students of legal age, according to the same teacher. She added that teachers can also test for HIV and other STIs to be a good example to their students. Several teachers agreed on the pivotal role they are playing in removing the stigma of HIV and STI testing. They believe that these screenings should be encouraged constantly by parents and teachers, especially for sexually active students. Some teachers also believed that HIV and STI testing should be branded as a "self-care" practice so students can live long and healthy lives.

Accordingly, many of the teachers are expecting to receive additional training and recurring seminars or conferences organized by their school in conjunction with the DepEd or DOH on topics and concepts about the prevention of HIV/AIDS. They emphasized that not all of them are subject matter experts on HIV/AIDS so it would be helpful for teachers and beneficial to students if the DepEd can create a common language as to how they should integrate the key messages on the lesson plans. Several teachers also emphasized the importance of the DOH to establish best practices for teaching sensitive topics regarding HIV/AIDS. At least three teachers also believed that they should be given an allowance or additional compensation for teaching HIV/AIDS preventive education considering that it is outside the scope of their specialization and would require extra time and effort from their "routine." A salary increase would also permit them to purchase additional materials and acquire the required resources in learning HIV/AIDS so they can teach it to their students with more credibility and reliability, according to the teachers.

3.   Perceived impact and implications of teaching HIV/AIDS preventive education to SHS students

Most teachers believe that teaching HIV/AIDS preventive education if done right, will positively impact the lives of their students. They are hoping that allowing their students to learn more about HIV/AIDS will not generate fear or stop them from engaging in sexual acts but help them make more informed decisions. The majority of the interviewed SHS teachers are also assuming that teaching HIV/AIDS preventive education would encourage their students to always be mindful of the consequences of their actions, especially around their sexual and reproductive health. Overall, the teachers are expecting their students to reduce risky behaviors when it comes to sex through increased usage of contraception, as well as improve their health-seeking behaviors. One teacher said that teaching HIV/AIDS preventive education could not only improve his students' understanding of sexual and reproductive

health problems but also enhance their coping mechanisms if one of them will be diagnosed with any related illnesses. Another interviewed teacher stated that he wants his students to share their learnings and takeaways about the prevention of HIV/AIDS from the classroom with their family and friends at home to "destigmatized" conversations around the topic of sexual and reproductive health, most especially among the conservative younger generation.

Furthermore, many teachers expressed optimism as they strongly believe that teaching HIV/AIDS to their students could remove the stigma around the contagious virus. Apart from spreading awareness of HIV/AIDS to their students, teachers also aim to promote more empathy and foster compassion, especially for those people who are suffering from the infectious virus. One teacher said that teaching topics centering around the prevention of HIV/AIDS could be her "own little way" of helping her many friends from the LGBTQIA+ community. More specifically, she said that incorporating CSE in the context of HIV/AIDS preventive education into her lesson plans could be an "excellent and exciting opportunity" for her to correct the wrongful assertion that portrays the infectious disease as a "gay plague."

Conclusion

Research revealed that amplifying awareness of the implementation of CSE, intensifying self-efficacy of teachers in teaching topics and concepts with relevance to the prevention of HIV/AIDS, as well as magnifying community-based interventions and social encouragement are the most important factors in improving the readiness of teachers. The researchers believe that the synergy of these significant variables to improve the preparedness of teachers in teaching HIV/AIDS preventive education will result in the expected outcomes or help obtain the objectives of the RH Law, DepEd Order No. 31 s. 2018, and PRRD's EO 12. Moreover, the synergy of these independent yet interrelated facets to enhance teacher readiness for teaching HIV/AIDS preventive education can also inform the impact and implications of teaching other contextualized CSE from across primary, secondary, and tertiary educational levels. Thereby, this synergy has the potential to reshape the landscape of the current educational system in the Philippines, as well as redefine the future of teaching and learning in the country.

Moreover, the researchers also recognize the obstacles in organizing and managing relevant efforts to fortify the preparedness of teachers when it comes to incorporating HIV/AIDS-related topics and concepts into their lesson plans or instructional modalities; hence, proactive, and reactive participation from all stakeholders, as well as public cooperation, is required based on research results and discussions. After all, and as posited by previous academic studies, implementing HIV/AIDS preventive education, as well as addressing both constraints and restraints of administering a contextualized CSE goes beyond the classroom, as they should also be tackled at home and in the community.

The authors of this study strongly suggest five significant directions other scholars may take if they would like to specifically delve into the same subject area as ours. Since this study only focused on the perspective of teachers from one school that is essentially a private, Roman Catholic parochial co-educational institution, other researchers can center their exploration on the point of view of other teachers from other public schools or government, single-sex, nonsectarian schools. Other researchers may also focus their analyses on the viewpoints of teachers from provincial schools, especially those located outside of the National Capital Region or from far-flung places in Visayas and Mindanao. Similarly, future

studies may examine the readiness of teachers to teach contextualized CSE in schools located in regions with low HIV/AIDS cases.

In addition, this research anticipates the need for other scholars to probe teachers' readiness in teaching other STIs, including chlamydia, genital herpes, genital warts, gonorrhea, and some types of hepatitis, syphilis, and trichomoniasis. By specifically targeting any of the five directions that the authors of this study suggested, other scholars can contribute to deepening the understanding of human social development as fostered by a contextualized CSE. These scholars can also help broaden the understanding of the enabling and disabling aspects of the current landscape of the Philippine educational system. The proposed topics can also allow other researchers to provide evidence-based recommendations that promote improvements and advocate innovations within the systematic framework of Filipino educational institutions. Other researchers can similarly produce recommendations that can potentially tackle existing limitations of the Philippine educational system, as well as address its current conundrums and other pending dilemmas. Finally, the authors of this study believe that the five directions highlighted above can fundamentally bring new and meaningful insights that can pave the way for the future of learning and teaching in the Philippines.

Acknowledgments

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Effects of Concept Scaffolding Teaching Approach on Grade 7 Students' Conceptual Understanding and Problem Solving Performance in Mathematics

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Abstract

Teachers must encourage their students to embrace mathematics and study it as simple as possible because majority of the students consider mathematics as one of the difficult subjects. This study aimed to investigate how the conceptual understanding and problem-solving performance of the students in mathematics were affected by the concept scaffolding teaching approach on the topic domain such special products and equations and inequalities in one variable. Quasi-experiment with pretest-posttest control group design was utilized. Participants were Grade 7 students from Mindanao State University-Saguiaran Community High School. The results revealed that after intervention, there was a significant difference on the mean scores between the control and experimental groups on the conceptual understanding test. Similarly, a significant difference was observed on mean gain scores between control and experimental groups on the conceptual understanding test. The mean score on the problem solving performance test showed a significant difference on control and experimental groups as well. However, it was discovered that there was no significant difference on the mean gain scores between the control and experimental groups on the problem solving performance test, even though the experimental group had a higher mean gain score than the control group. The results of this study showed that the concept scaffolding teaching approach has a favorable effect on the conceptual understanding and problem solving performance of students in mathematics. The study was unable to distinguish the difference in the mean gain scores on the control group and experimental group in the problem solving performance test.

Keywords: Concept Scaffolding Teaching Approach, Traditional Teaching Approach, Problem-Solving Performance, Conceptual Understanding

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Introduction

Mathematics is a subject that needs ample time to comprehend, especially in solving word problems in the textbook. Some of the problems are not easily visualized by the students and the situation being depicted. Students nowadays are continually undergoing changes. They are more interested on the context which they can visualize easily and relate the topic in a more practical situation. This can only be made possible if the teacher's approach in teaching his lesson is being guided and contextualized according to the interest of his learners and their life circumstances.

One of the difficult subjects is regarded to be mathematics according to some research. Ganal & Guiab (2014) describe mathematics as difficult, obscure, and of little interest to students. According to Eduafo (2014), the ability to use mathematics effectively is essential for academic success as well as civic engagement, job success, and personal fulfillment. The Department of Education (DepEd) in partnership with the Mathematics Teachers Association of the Philippine conducts an annual competition in mathematics to build the competitiveness to both elementary and high school students. Most of the questions are problem solving which need an extreme analysis and time to solve the given problem. In the year 2017, one of the students in Bangasamoro Autonomous Region in Muslim Mindanao won a gold medal in an international mathematics competition. It is indeed inspiring to see students competing and excelling in such contest despite of the weakening status of mathematics education in the Philippines. The K–12 programs could further worsen high school students' results on the National Achievement Test (NAT) in both private and public schools. It is very dismaying because the result is very poor specifically in mathematics.

In the year 2006, most schools in the country have not reached the cut-off score which is 75% in mathematics. NAT scores below 50% indicate a low mastery of the subject. In the year 2011, the DepEd admitted that 67% of high schools fared poorly in the said test. Students sometimes struggle with answering math questions by applying formulae, properties, theorems, and/or laws improperly and failing to fully solve problems even when they follow the initial procedure correctly (Capate and Lapinid, 2015). Also, the poor achievement of students in mathematics is caused by four factors: the students, teacher, classroom management and evaluation (Andaya, 2014). In addition, out of 45 nations, the Philippines scored 42nd on the International Mathematics and Science Study (TIMSS) in mathematics. The Philippines' rank has not improved since 1999 and did not participate in the 2007, 2011, 2015 TIMSS. Hence, based on this stagnation, this simply implies that the education in the Philippines needs to improve specifically in mathematics.

Teaching strategies and other teaching techniques need to be improved and should fit the needs of the society if we are to address the need to improve learning outcomes in the schools that were categorized as having poor achievement and lower average rates. Its purpose is to enhance students' performance and motivate them to learn particularly in solving mathematical problem. It can be said that mathematics is a tool to train students enabling them to solve problems, building thinking process that will lead them to further ability in solving non-mathematical problems. One way to assess and examine the students' problem-solving abilities is to develop a method for teaching mathematics. This study sought to develop a highly recommended teaching approach. The researcher studied the effects of concept scaffolding teaching approach on conceptual understanding and problem-solving performance of Grade 7 students in mathematics.

In general, the purpose of this study was to look into how the concept scaffolding teaching approach affected the conceptual understanding and problem-solving performance of Grade 7 students in Mathematics. Specifically, it sought answers to the following questions:

1. What are the conceptual understanding levels in the control group and experimental group of Grade 7 students before and after intervention?
2. Is there a significant difference in the conceptual understanding test mean scores before and after intervention on the control and experimental groups of Grade 7 students, and in the mean gain score?
3. What are the problem-solving performance levels in the control group and experimental group of Grade 7 students before and after intervention?
4. Is there a significant difference in the problem solving performance test mean scores before and after intervention on the control and experimental groups of Grade 7 students, and in the mean gain score?

Conceptual Framework

The effects of the independent variable on the dependent variables were involved in the investigation of this study. The concept scaffolding teaching approach and the traditional teaching approach are the independent variables. Conceptual understanding and problem-solving performance are the dependent variables. The research paradigm in Figure 1 illustrates the flow in which the independent variable influences the dependent variables. The arrows show that the instructional approaches in the form of concept scaffolding teaching approach and traditional teaching approach affect the students' conceptual understanding and problem solving performance. The research paradigm that illustrates the conceptual framework is shown in Figure 1 to illustrate the direction of the investigation and to show the links between the dependent and independent variables.

Independent Variable   Dependent Variables

Teaching Approach
➢ Concept Scaffolding Teaching Approach
➢ Traditional Teaching Approach

Conceptual Understanding

Problem Solving Performance
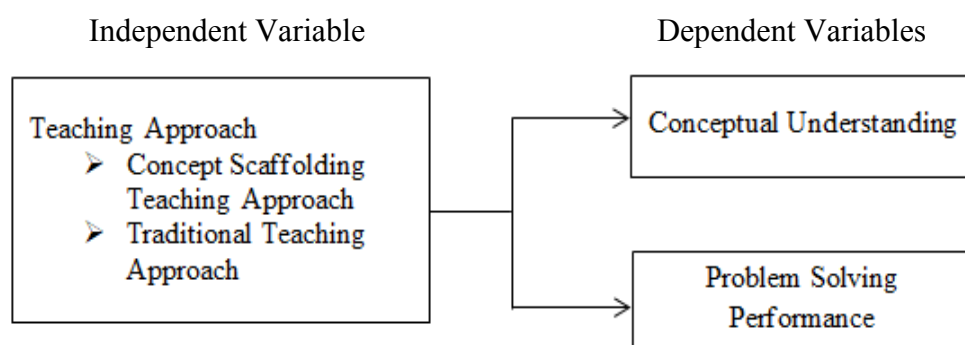
Figure 1: Research Paradigm

Scope and Delimitations of the Study

The scope of the study was limited to investigating how the concept scaffolding teaching approach affected the conceptual understanding and problem solving performance of Grade 7 students in mathematics. Data were limited in the forms of test scores and declared views coming from two sections of Grade 7 students of MSU-Saguiaran Community High School of school year 2019-2020. The topic domains covered in the study were limited only on special products, equations, and inequalities. The focus of instruction was mostly on using guess and check to solve linear equations and inequalities in one variable, algebraically solving linear equations and inequalities, algebraically solving first degree inequalities in one

variable, and solving absolute value equations and inequalities. Results of the study are non-conclusive in nature.

Research Design

This study employed both quantitative and qualitative research method. The quantitative part utilized the quasi-experimental research design. Two intact groups were used as recipient of instruction. The two groups were compared using their mean scores and mean gain scores in the Conceptual Understanding Test and Problem-solving Performance Test. The pretest-posttest control group design with matching-only was employed. The design is shown below.

Experimental	M	O	X	O
Control	M	O	C	O

The experimental group refers to the group of students who received instruction using concept scaffolding teaching approach while the control group refers to the group of students who received instruction using traditional teaching approach. The symbol M denotes for the matching of samples of students in the second quarter grade in mathematics for the academic year 2019–2020. The symbol O stands for observation. The first column of O's refers to the first observation which is the administration of the pre-tests for the Conceptual Understanding Test, Problem Solving Performance Test, and other measurements. The concept scaffolding teaching approach used with the experimental group is denoted by the symbol X as the instructional intervention. The control group or comparison group is denoted by the symbol C. The second column of O's refers to the second observation which is the administration of post-tests for the Conceptual Understanding Test, the Problem Solving Performance Test, and other measurements.

Locale of the Study

This research was conducted at the Mindanao State University-Saguiaran Community High School which is located in the barangay of Poblacion in Saguiaran, Lanao del Sur. The school is a part of Mindanao State University - Main Campus' High School Units. One of the most prestigious public high schools in Lanao del Sur, it is regarded as the top external high school for Mindanao State University.

Participants of the Study

Participants in this study were the two intact groups of Grade 7 students who were formally enrolled at the MSU-Saguiaran Community High School for the academic year 2019–2020. The researcher chose Grade 7 students because the topic domains such as the special products, equations and inequalities are being taught in this level. There were three sections in the grade 7 who handled by the two mathematics teachers and a total of 119 Grade 7 students including the participants of the study such as the Grade 7 – Diamond consisted of 38 students and Grade 7 Emerald consisted of 40 students.

Results and Discussions

This section presents the data, its analysis and interpretation. The presentation of the data follows the sequence/order of the statement of the problem.

What are the conceptual understanding levels in the control group and experimental group of Grade 7 students before and after intervention?

Table 1: Frequency count and Percentage Distribution of Students' Level of Conceptual Understanding in the Control and Experimental Groups

Level of Conceptual Understanding	Number (%) of Students before Intervention		Number (%) of Students after Intervention	
	Control Group (n=22)	Experimental Group (n=22)	Control Group (n=22)	Experimental Group (n=22)
Well-developed	0 (0%)	0 (0%)	3 (13.6%)	11 (50%)
Developed	3 (13.6%)	5 (22.7%)	19 (86.4%)	11 (50%)
Less Developed	19 (86.4%)	17 (77.3%)	0 (0%)	0 (0%)
Total	22 (100%)	22 (100%)	22 (100%)	22 (100%)

Note: Raw Score: 31-40 – Well developed; 20-30 – developed; 0-19 – Less developed

As shown in Table 1, almost all students in the control group (86.4%) and experimental group (77.3%) had less developed level conceptual understanding prior to the instructional intervention. Very few students from control group (13.6%) and experimental group (22.7%) demonstrated a develop level of conceptual understanding. None of the students demonstrated a well-developed level of conceptual understanding from both groups. These findings appear to indicate that the majority of the students had little prior understanding of the subjects covered in the lecture, such as special products, equations, and inequalities, and this is to be expected. Obviously, students with no prior knowledge on the topic domains are defeated in problem-solving tasks. They have no pre-existing knowledge that they can utilize in solving the problem.

After the intervention, so few (13.6%) from the control and half (50.0%) in the experimental groups demonstrated well-developed level of conceptual understanding. Similarly, most (86.4%) of the students in the control group while half (50.0%) in the experimental group showed a developed level of conceptual understanding. None (0%) of the students in both groups showed a less-developed level of conceptual understanding. As seen in the post-test results following the intervention, many students from both groups increased their conceptual understanding levels. The experimental group, however, showed higher level of conceptual understanding than the control group.

Is there a significant difference in the conceptual understanding test mean scores before and after intervention on the control and experimental groups of Grade 7 students, and in the mean gain score?

Table 2 shows the comparison of the groups on the conceptual understanding test mean scores before and after the intervention, as well as the mean gain scores. The .05 level of significance was applied to the t-test on independent samples. Prior to the instructional intervention, students in the both groups recorded lower mean scores (15.77 vs. 14.55), which were near to each other and thus not statistically significant (p=0.38 > .05). This indicates that both groups were initially comparable in their conceptual understanding on the topic domains of this study. Apparently, both groups of students had very limited or had no prior knowledge about the coverage of the third grading period in their mathematics before the intervention.

Table 2: Comparison of the Control Group and Experimental Group of Students' Conceptual Understanding Test

Period	Group	t-test for equality of means				
		Mean Score	Mean Gain Score	SD	t-value	p-value
Before Intervention	Experimental (n=22)	15.77		5.03	0.89	.38(ns)
	Control (n=22)	14.55		4.03		
After Intervention	Experimental (n=22)	30.45		5.14	3.80	.00(s)
	Control (n=22)	25.18		3.98		
	Experimental (n=22)		14.68	4.66	2.99	.01(s)
	Control (n=22)		10.64	4.28		

Note: s – significant at 0.05 level; ns – not significant at .05 levels

After intervention, the experimental group recorded a mean score that was higher than the control group (30.45 vs. 25.18), and the difference was statistically significant (p=0.00<.05) in the favor of the experimental group. The mean gain score of the experimental group is also considerably greater than the control group (14.68 vs. 10.64), and statistically significant (p=0.01< .05) with a t-value of 2.99 in favor of the experimental group. Evidently, the instructional intervention utilized with the experimental group showed to be effective in improving students' conceptual understanding. The use of scaffolding of concepts everytime they solved worded problems helped them in rehearsing and reflecting their understanding which is a constructivist way of learning. This is reasonable to expect because scaffolding is a metacognitive way of learning by guiding students as a technique of remembering.

What are the problem-solving performance levels in the control group and experimental group of Grade 7 students before and after intervention?

Table 3: Frequency count and Percentage Distribution of Students' Level of Problem-Solving Performance

Level of Problem Solving Performance	Number (%) of Students before Intervention		Number (%) of Students after Intervention	
	Control Group (n=22)	Experimental Group (n=22)	Control Group (n=22)	Experimental Group (n=22)
High	0 (0%)	0 (0%)	0 (0%)	3 (13.64%)
Moderate	0 (0%)	0 (0%)	8 (36.36%)	16 (72.72%)
Low	22 (100%)	22 (100%)	14 (63.64%)	3 (13.64%)
Total	22 (100%)	22 (100%)	22 (100%)	22 (100%)

Note: Raw Score: 31-40 – High; 20-30 – Moderate; 0-19 – Low

Table 3 shows that prior to the intervention, neither the experimental group nor the control group of students had any students perform at the high or moderate level in terms of problem solving performance. Both the control group and the experimental group of students perform low level of problem-solving performance. This implies that all students from both groups had no prior knowledge in the problem-solving performance test. After the intervention, few (13.64%) students from experimental group demonstrated high level of problem solving

performance while none (0%) from the control group. Moreover, more than a quarter (36.36%) of the students in the control group while closer to the three-fourths (72.72%) in the experimental group demonstrated moderate level of problem-solving performance. More than half (63.64%) of the students in the control group while few (13.64%) in the experimental group remained in the low level of problem-solving performance.

Is there a significant difference in the problem solving performance test mean scores before and after intervention on the control and experimental groups of Grade 7 students, and in the mean gain score?

Table 4: Comparison of the Control Group and Experimental Group of Students' Problem-Solving Performance Test

Period	Group	t-test for equality of means				
		Mean Score	Mean Gain Score	SD	t-value	p-value
Before Intervention	Experimental (n=22)	9.73		4.50	1.83	.08(ns)
	Control (n=22)	8.23		4.20		
After Intervention	Experimental (n=22)	23.00		2.43	3.25	.00(s)
	Control (n=22)	18.73		2.99		
	Experimental (n=22)		13.27	5.16	1.92	.06(ns)
	Control (n=22)		10.50	4.39		

Note: s – significant at 0.05 level; ns – not significant at .05 levels

Table 4 shows that before intervention both the control and experimental groups of students poster lower mean scores (9.73 vs. 8.23), were closer to each other, and were therefore not statistically significant (p=0.08>0.05). This suggests that both groups of students were initially comparable on their problem-solving performance before the instructional intervention. In addition, this also suggests that students were lack of necessary knowledge skills to be used in solving worded problems under the topic domains of the study. This is natural to expect because students are already defeated before they attempt to solve the problems with no armory of knowledge to retrieve in solving the problems.

After intervention, the experimental group was higher the control group in terms of mean score (23.00 vs. 18.73), and this difference was statistically significant (p=0.00< .05) in favor of the experimental group. The mean gain of experimental group was also higher than the control group (13.27 vs. 10.50), but the difference is not statistically significant (p=0.06>0.05). This shows that teaching mathematics using a scaffolding technique has been found to be effective in assisting students in solving problems in mathematics. Furthermore, this also suggests that students from the experimental group improved their Problem Solving Performance Test scores because during the intervention, they were exposed on the instructional intervention in which they practiced worded problems with the guides and supports that could help them develop their problem-solving skills.

According to Lin and Singh (2016), some students were able to take advantage of the scaffolding supports provided and transfer their learning from the solution to the problem provided to solve the analogical problem. The use of scaffolding, which takes the form of

written questions and step-by-step instructions, can help students in solving problems (Arifin et al., 2020). Apparently, this study found evidence on improvements of students' Problem Solving Performance Test scores after the intervention in favor of the experimental group. However, the study did not find sufficient evidence to detect significant difference between the control and experimental groups of students' mean gain score even though, as a matter of fact, such an effect existed. Moreover, we cannot conclude that the concept of scaffolding in problem solving performance of students is not effective because the results could be accounted to the fewer number of sample (n=22) for each group and the short duration of the intervention done only for almost 7 weeks. According to Murphy et al. (2014), if the number of samples and effect sizes were increased and the criteria for statistical significance were more flexible, a test would have a higher level of p-value.

Conclusion

Based on the findings of the study, the following conclusions were drawn. (1) Both the control and experimental groups of students had higher levels of conceptual understanding after using the concept scaffolding teaching approach but more students in the experimental group were able to advance from a less-developed to a well-developed level. (2) After the intervention, there was a significant difference in the mean conceptual understanding test scores between the control and experimental groups (p= 0.00< .05). The mean gain score on the conceptual understanding test for the students in the control and experimental groups also showed a statistically significant difference (p= 0.01< .05). This implies that the idea scaffolding instructional strategy improved the students' conceptual understanding of mathematics. (3) Moreover, both the control and experimental groups of students had an increase in their level of problem-solving performance, but more students in the experimental group were able to increase from a low to a moderate or high level. (4) Finally, the students' mean scores on the problem-solving performance test differed significantly between the control and experimental groups after the intervention (p=0.00< .05). However, the students' mean gain scores on the problem-solving performance test showed no significant difference between the experimental and control groups (p= 0.06 > .05). The study did not find sufficient evidence to detect a difference between the experimental and control groups of students' mean gain score in the problem-solving performance test.

Acknowledgement

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How Far Could Poor Rural Students Access Elite Universities in China?
—A Discussion Based on the Cultural Reproduction Theory

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Abstract

The educational system seems to provide a level playing field and class leapfrogging pathway for lower-class students, because the evaluation criteria could be usually centered on academic performance. However, Bourdieu argued that lower-class children could have little access to cultural capital, so they tend to be at a competitive disadvantage including academic performance, and the social structure could be reproduced through the process of cultural reproduction. However, the cultural reproduction theory might not fully explain why there could still be some 'exceptions', the poor rural children who could enter elite schools in China. Recent studies explained the controversial situation through the perspective of the individual, family and government in China. Students from poor rural areas could take the initiative to approach cultural capital through various means, including schools and social media. Besides, families should value their children's education and activate the 'bottom cultural capital'. In addition, the educational policy which aims to interrupt the influence of the family on education could affect the transmission of the upper class's advantage between generations in China. Therefore, cultural reproduction theory could be partially applicable in China, but it could be more relevant if the elements of individual, family and government had been considered based on the Chinese context. Although poor rural students still face difficulties in entering elite universities, there could be chances for them to realize it by individual initiative, family support and policy protection.

Keywords: Higher Education, Lower-Class Students, Elite University, Cultural Reproduction Theory

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Introduction

As an important connecting bridge between study and the workplace, higher education could be expected to play the role of promoting social mobility by providing the chance of success to any competent and motivated student (Haveman & Smeeding, 2006). Besides, going to the elite university is often seen as an important step towards a class leap, because people with an elite university credential could be usually advantaged in competing for jobs and obtaining higher starting salaries (Cheng & Kang, 2016; Chiang, 2018). However, there could be more difficulties for lower-class students to gain enrollment chances of elite universities because of the lack of cultural capital (Sullivan, 2001). In this essay, cultural capital could be defined as the knowledge and skills that are useful in educational competition (Lareau & Weininger, 2003). The lower class could refer to people who come from rural areas, whose parents have not received higher education and are predominantly manual workers, as well as the household income is below the local average income level (Cheng & Kang, 2016).

The educational system seems to provide a level playing field and class leapfrogging pathway for lower-class students, because the evaluation criteria could be usually centered on academic performance (Jenkins, 2014). However, Bourdieu (2018) argued that lower-class children could have little access to cultural capital, so they tend to be at a competitive disadvantage including academic performance. The social structure could be reproduced through the process of cultural reproduction (Bourdieu, 2018). Thus, it could be difficult to change social inequality between classes through education (Bourdieu, 1998).

In China, admission to Chinese universities could be determined by students' examination results in the annual "National College Entrance Examination" (Gaokao) (Chiang, 2018, p.506). A student who gets higher scores in Gaokao would be more likely to get into elite universities. Considering the colleges' academic reputation and job market recognition in China, the elite college refers to the 985 colleges in this essay, the list of which was refreshed by the Ministry of Education of the People's Republic of China with 39 universities (Department of Degree Management and Postgraduate Education, Ministry of Education, 2006). The resources of them could be limited and hotly contested. Only about 1.9% of candidates could be admitted to 985 universities according to the data of 2020 in China (Ye, 2021). Thus, entering elite college could be usually regarded as a form of attaining high educational achievement and getting quality educational resources (Cheng & Kang, 2016).

It could be more difficult for poor rural students to get through Gaokao because of the limited teaching conditions, negative attitude to education and the lack of support from family in China (Yu & Han, 2018). Huang (2018) implied that most rural candidates could end up in ordinary universities of a lower level. Therefore, there could be very few poor families who can cultivate elite university students in China (Cheng & Kang, 2016; Yu & Han, 2018). This situation leads to an argument of the "uselessness of learning" (Cheng & Kang, 2016; Huang, 2018; Xie, Hong, Kuang, & Postiglione, 2018), which implies a tendency that hard study may not lead to the equal outcome for lower-class students. The debate over whether poor rural students in China can succeed in entering elite colleges could reflect many people's hopelessness in changing their lives through learning.

From a macro perspective, students from well-off families are more likely to go to a prestigious university, while lower-class students typically face the opposite situation in China (Cheng & Kang, 2016). However, if we explore this phenomenon in depth, it is not entirely inaccessible for lower-class students to enter elite colleges. Although it has been reported that the proportion of lower-class students that enrolled in university has shown a declining trend in China (Huang, 2018), there could be an increasing trend in the number of students from lower-class attending university in China (Xie et al., 2018). Therefore, it could be obvious that some other elements neglected by Bourdieu could decrease the effect of the family's social status on the accessibility of educational resources. It could be contradictory when applying Bourdieu's cultural reproduction theory directly to the Chinese context to some extent.

The concept of cultural capital has become one of the most widely used in the research on equity of access to higher education (DiMaggio & Mohr, 1985; Jenkins, 2014; Yu & Han, 2018). It could partly explain differences in "educational attainment" between classes (Sullivan, 2001, p.2). However, Bourdieu's analysis could not take account of the individual initiative of the lower-class and different ways in which cultural capital functions in different cultural contexts (Cheng & Kang, 2016; DiMaggio & Mohr, 1985; Mortimer, 1985). Therefore, this research will discuss the approaches of lower-class students' access to elite universities in China through the lens of cultural reproduction theory and focus on the role of cultural capital.

Literature Review

Cultural Reproduction Theory and Cultural Capital

Since the term 'capital' was presented by Bourdieu, research in the fields of social science has expressed strong concerns about it (Lareau & Weininger, 2003; Prieur & Savage, 2013). Bourdieu (2002) pointed out capital could be formed through accumulation and converted into profit, as well as being embedded in some objective form with a tendency of persistence. Cultural capital was coined to represent inheritors' advantages of children whose family is on the high social status (Prieur & Savage, 2013), including the familiarity and good "taste" of ''highbrow culture such as fine arts and classical music" (Lareau and Weininger, 2003, p.568). It is usually present with forms of "the embodied state" (stable physically and mental character), "the objectified state" (cultural goods such as books, article work, musical instruments and so on) and "the institutionalized state", which could be presented by educational qualifications (Bourdieu, 2002, p.282). Besides, cultural capital could be passed from generation to generation through "inheritance", which suggests that the cultural capital has a cumulative and inaccessible character (Zhu, 2005).

However, the debate on the question of whether cultural capital could be fixed or floating has never ceased (Prieur & Savage, 2013). Bourdieu (1998) suggested that cultural capital is not a static concept and would be affected by the field. One of the limitations with this explanation is that it is less practical when conducting research because the measurement of cultural capital requires specific indicators (Prieur & Savage, 2013). For example, Katsillis and Rubinson measured cultural capital with "attendance at theater and lectures, visits to museums and galleries" in 1990; while Eitle and Eitle used "trips to museums, art, music, dance classes" as a measurement in 2002 (Lareau and Weininger, 2003, pp.571-573). Besides, it was argued that operationalizing measurements should emphasize the consumption of mass rather than high culture categories" in the United States (Holt, 1997, p.109). Therefore,

although most research about cultural capital share a similar concept of an "elite status culture" with DiMaggio (1982), the specific elements to which cultural capital refers could vary in different research contexts.

Bourdieu suggested that cultural capital plays an important role in cultural reproduction because the children whose families own more of it could be at an advantage in the educational competition (Sullivan, 2001). Thus, cultural capital could be usually used to explain the inequality of academic success between children from different social classes because of the significant correlation between cultural capital and grades (Prieur and Savage, 2013; DiMaggio and Mohr, 1985).
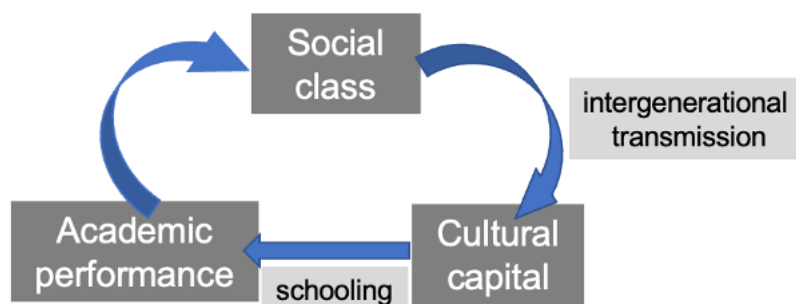
Figure 1: The framework of the cultural reproduction theory

According to the cultural reproduction theory, Bourdieu (2018) implied social power relationships could be reconstructed between classes through the educational system. Milne and Aurini (2015) agreed that the inequality could be generated by resources that are transmitted from parents. Firstly, upper-class parents could have more cultural capital to pass on to the next generation (B. Zhu, 2020). Their children could have approaches to the 'elite culture' from childhood. Besides, the upper-class parents would pay more attention to the children's education and would like to invest for their academic improvement (Chiang, 2018; Xie et al., 2018). According to Jenkins (2014), the family with different SES (social-economic-status) would take different approaches to educate children from attitude and action. In addition, compared to lower-class parents who have to worry about financial resources, parents in the upper class have more time and willingness to transmit cultural capital by talking and acting (Blaskó, 2005). Thus, the "social position" of the family may affect children's "academic success", which would lead to the reproduction of status in the social system (Bourdieu, 2018, p.257). In addition, it has been proved that the father's background could influence a child's education result (Fan, 2014). Sullivan (2001) also emphasized the significant impact of social class on educational attainment. Therefore, the laws of the educational market transform the social hierarchies into academic hierarchies based on capacity (Bourdieu, 2018).

In addition, cultural reproduction theory questions the neutrality of knowledge and regards schools as the mediators of the transmission of inequality (Jenkins, 2014). Students from the dominant class would be more familiar with the culture which could be assessed in school (Anzalduá, 1990). In school, teachers could reward students who own the cultural capital and criticize those who do not have it by "pedagogic actions" (Tzanakis, 2011, p.76) More attention and communication could be given to students who have participated in elite culture because teachers could regard them as gifted students (DiMaggio, 1982). Then the cultural capital of the dominant class would be admitted as the standard of talent. Jenkins (2014)

argued that compulsory education could make schooling seems disinterested, but the pedagogical authority could still be held by schools with favoritism towards the upper classes. The existing position in the social structure could limit the "subjective expectations of the objective probabilities" (Jenkins, 2014, p.112). Then, through the lens of cultural reproduction, education could not change the existing situation of the solidification of social structures.

Critical Views of Cultural Reproduction Theory

However, the cultural mobility theory suggested that the influence of the home environment could only partially affect the child's academic performance (B. Zhu, 2020). The acquisition of cultural capital is a long-term process, so it could be also vital to realize the role of schools. Zhu (2020) emphasized that children from non-elite families could not only have access to cultural capital at school, but might benefit from it more than children from elite families. DiMaggio (1982), a major contributor to the theory of cultural mobility theory, is probably the best-known critic of the cultural reproduction theory. Although he agreed that cultural capital could have a positive effect on the acquisition of educational attainment (DiMaggio & Mohr, 1985), he argued that schools and peer groups could help lower-class students access to cultural capital (DiMaggio, 1982). Besides, students could have the ability to choose their position in the "cultural landscape" from expanded social networks and social contexts without restriction in modern society (Emmison, 2003; B. Zhu, 2020). It means individuals could gain cultural capital with the initiative through different approaches such as the internet. Besides, Connell argued that Bourdieu's theory ignored the subjective initiative during the whole process (Mortimer, 1985). Vassenden and Jonvik (2019) have already drawn attention to the paradox in the differences of the tastes and culture between pre-school children from different classes. This research's result suggested that the children from the lower class could automatically experience the culture they are exposed to rather than feeling the subordination, and the educated children did not show contempt for another group as well (Vassenden & Jonvik, 2019). It is suggested that individuals could have the ability to acquire cultural capital if they have access to it.

The school could be regarded as an important place for lower-class students to learn cultural capital to increase the possibility of class leap (B. Zhu, 2020). Some measures of the schools could bridge the capacity gap arising from different capital among families effectively. In a case study that focused on the students' participation in Progressive Discipline, Milne and Aurini (2015) noted that this chance could not only make students from lower SES (social-economic-status) familiar with the value and habits of higher class, but also practice their ability of communication and consolation. The school plays a compensatory role in the individual improvement in the process of accumulating cultural capital (Emmison, 2003; Xie et al., 2018). As a platform to teach knowledge and skills, the school could still be a trustworthy organization to acquire the necessary competencies for social adaptation (Yu & Han, 2018).

In addition, the government could have the capacity to further advance educational equity and reduce the impact of family cultural capital by providing the access to schools (Yu & Han, 2018). It could be possible for schools (especially the "state selective school") to promote the class leap within the management by the government (Jenkins, 2014, p.115). For example, countries with compulsory education laws could provide chances and places for children of all classes to receive knowledge and skills, such as the UK and China ('Compulsory

Education | Department of Education', 2015; 'Compulsory Education Law of the People's Republic of China (Presidential Decree No. 52)', 2006). Based on these laws, students could learn academic and practical knowledge in schools in adolescence. Jenkins (2014) suggested that new cultural capital could be created rather than reproduced during the process. Then the dominant position of existing cultural capital might be challenged by the new, which could help lower-class students compete with others more equitably.

Besides, recent studies suggested that parents from the dominant class could usually own the cultural capital which could shape children's educational experience, but owning may not mean activating successfully (Chiang, 2018). It could mean that not all parents know how to pass on cultural capital and make it work in their children's academic performance. The transmission of intergenerational advantage is complex and family dominance might not translate into academic and social achievement for children directly (Xie et al., 2018). Thus, the effectiveness of the intergenerational transmission of cultural capital still needs to be further explored.

Therefore, the family background cannot be the only factor that influences students' educational attainment (DiMaggio, 1982; Sullivan, 2001). Whether lower-class students could access elite universities should also consider the elements of individual, family, and government (DiMaggio, 1982; Jenkins, 2014; Mortimer, 1985).

Research Method

Research Framework

Based on previous research and the context of this study, the research framework is shown in the diagram below. Cultural capital can be regarded as an important factor that can affect class transition through higher education. In the context of China, the elements of personal adaptability, the traditional concept of education in the family, and the national policy will be analyzed as other factors that will influence the academic performance and class transition.
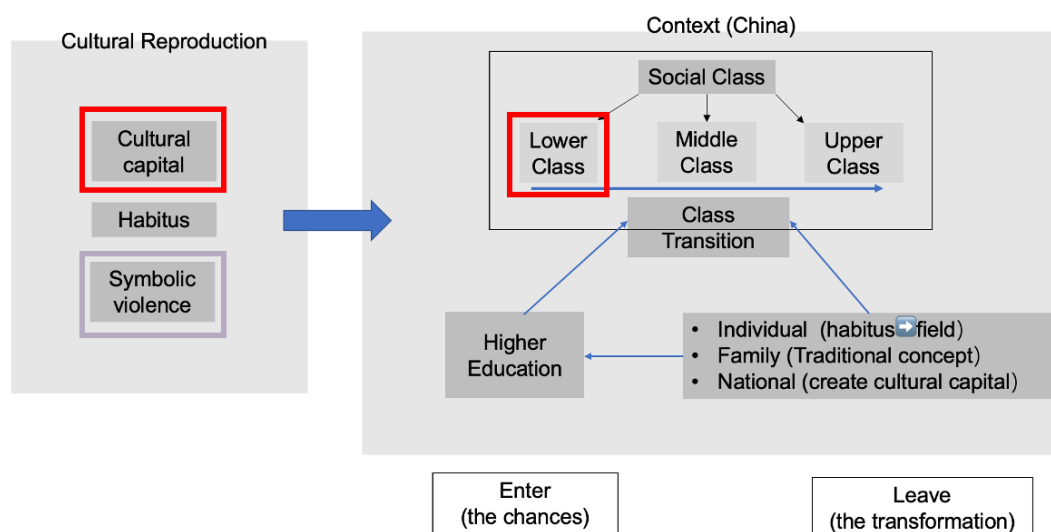
Figure 2: Research framework of this study

Research Design

In this research, the semi-structured interview method has been used to collect the data from 3 interviewees. All the interviews were conducted online and lasted for around one hour. Here is the information of the 3 interviewees. They were chosen by convenience sampling considering the cost and time limitations of the study.

Interviewee	Age	Gender	Hometown	Education Background
A	23	Female	City	Elite University
B	26	Male	Village	Technical College
C	28	Female	Village	Elite University

Table 1: The information of the interviewees

Considering that the participants' mother language is Mandarin, interviews were conducted in Mandarin in order to enable the subjects to express themselves more comfortably and more adequately. After the interview, the recordings of the interview have been transcribed to facilitate subsequent analysis. After the initial collation of the interview script, NVivo 12 has been used to assist with the coding.

Findings and Discussion

Little Cultural Capital Transmitted from Family for Poor Rural Students

Since the *Reform and Opening Up* of the 1970s, China's economy has developed rapidly, and industrial development has led to rapid economic growth in the cities (Liang et al., 2012). However, the rural areas, which rely mainly on agriculture for their development, could be at a disadvantage, so the difference in resources between urban and rural areas could be more pronounced than ever, especially in educational areas (X. Li, 2021). Although the admission list of elite universities would be determined by the grades of the entrance examinations in China (Chiang, 2018), rural students could still be at a significant disadvantage in the educational competition system (Xie et al., 2018). On the one hand, poor rural students could have less access to cultural capital from family (Fan, 2014). It has been proved that children could be more likely to attend higher education if the father is highly educated and has a white-collar occupation in China (Liao, 2018). However, most parents from Chinese poor rural areas could have not received higher education before, so it could be difficult for their children to get academic help from them (Liao, 2018). Besides, they might have not experienced diverse cultural activities themselves such as listening to concerts and going to the library, due to the limitations of the village infrastructure (Xie et al., 2018). The huge financial pressure could make them spend most of their time and energy on making money (Cheng & Kang, 2018), so elegant cultural activities would be regarded as a luxury for them. In addition, poor rural parents emphasize children's obedience to instructions because they tend to believe that the family should firstly provide a safe environment in which children can grow up naturally (Xie et al., 2018). Therefore, there could be little cultural capital to be transmitted from family for poor rural students due to the lack of parents' attention and rationalization of their academic studies and cultural activities in China.

The Unfamiliar Inspires Students' Curiosity to Explore New Knowledge and Experience

It is the truth that the knowledge taught in school could be closer to urban life, so it could be more difficult for rural students to understand and master because they could be more distant from it (Zhang, Xiong, & Liu, 2016). For example, the selection of modern texts in Chinese compulsory primary Chinese textbooks focuses more on cities, with many descriptions of urban human landscapes, such as street trees, Suzhou gardens and the National Palace Museum. Most rural students could just learn the text through textbook illustrations, whereas urban students could get " in touch" with these through trips and summer camps (Zhang et al., 2016). Just as Bourdieu (1984) argued, the upper-class students' familiarity with the dominant culture could allow them to have a greater affinity and adaptability to the knowledge which could be regarded as the evaluation criteria of the society.

However, one participant from the rural area said that although she was not familiar with the content of the books, her curiosity was stimulated to explore or see them by hard-working. In addition, there are more possibilities for students to be exposed to different cultural circumstances, which could help them to gain some cultural capital nowadays in China (B. Zhu, 2020). For example, one interviewee reported that she could listen to the classes of famous universities and enjoy the opera on the internet in the age of informatization, which could be hard to realize in the past. It means that individuals from rural areas could also get approaches to cultural capital easier than before with the development of technology. Thus, cultural capital could not have obvious class segregation and exclusivity, so the rural students might make up for the lack of family cultural capital through significant others or other means in China (Yu & Han, 2018).

The Quality of Diligence in 'Bottom Cultural Capital' Is the Motivation to Work Hard

The lower-class has a unique and meaningful cultural heritage, which can be transmitted from the family. Some scholars have conducted related research to argue that the unique cultural capital possessed by students from poor rural areas could be a vital factor in their success in China (Cheng & Kang, 2016; Yu & Han, 2018). The 'bottom cultural capital', such as conscientiousness, diligence, filial piety and moralistic thinking, can compensate for rural students' lack of the cultural capital of the upper class (Cheng & Kang, 2016; W. Zhu, 2006). These qualities could be the motivation for rural children to work hard. For example, rural students could be more caring and less of a nuisance to their parents, due to the pressure of family finances (Cheng & Kang, 2018). Therefore, they would easily perceive their responsibilities and thus focus their energy on their studies, which could be an important element for high educational attainment.

Regulation by Schools and the Government Can Diminish the Impact of Cultural Capital

Due to the Chinese tradition of respecting and trusting teachers, the reliance on them could reduce the influence of the family to some extent (Cheng & Kang, 2016; Chiang, 2018). Cheng ana Kang (2016) emphasized the role of teachers in achieving academic success, who could help lower-class students bridge some cultural capital gap. A qualitative study of students from elite families in Beijing showed that even the elite parents would default to

teachers as key helpers in getting their children into university and often become actively involved when their children are at risk of entering elite universities (Chiang, 2018).

From the perspective of the government, many education-related policies take into account the interests of lower-class students (Liang et al., 2012). For example, *Compulsory Education Law* requires that "all school-age children and adolescents with the nationality of the People's Republic of China, regardless of gender, ethnicity, race, family property status, religious beliefs, etc., enjoy the right to receive compulsory education on an equal footing and fulfill the obligation to receive compulsory education in accordance with the law" ('Compulsory Education Law of the People's Republic of China (Presidential Decree No. 52)', 2006). It could provide children from the lower classes with access to cultural capital through school and reduce the influence of family background. Besides, the Chinese Higher Education Revitalisation Programme for central and western regions and the poor rural areas tends to provide privileges to lower-class students to promote educational equity (Xie et al., 2018). Thus, poor rural students could have more chances to enter elite universities under the protection of the policy.

Conclusion

Bourdieu suggested that the cultural capital possessed by the upper classes would help them to maintain their dominant status based on the cultural reproduction theory (Jenkins, 2014). He emphasized the role of cultural capital from the family in a child's academic success. DiMaggio (1982) argued that cultural capital could also be acquired from schools and others, which could weaken the influence of family background. However, these theories might not fully explain why there could still be some 'exceptions', the poor rural children who could enter elite schools in China.

Recent studies explained the controversial situation through the perspective of the individual, family and government in China (Cheng & Kang, 2016; Xie et al., 2018; Yu & Han, 2018; W. Zhu, 2005). Students from poor rural areas could take the initiative to approach cultural capital through various means, including schools and social media (Xie et al., 2018; B. Zhu, 2020). Besides, families should value their children's education and activate the 'bottom cultural capital' (Cheng and Kang, 2016). In addition, the educational policy which aims to interrupt the influence of the family on education could affect the transmission of the upper class's advantage between generations in China (Y. Li, 2006).

In conclusion, cultural reproduction theory could be partially applicable in China, but it could more relevant if the elements of individual, family and government had been considered based on the Chinese context. Although poor rural students still face difficulties in entering elite universities, there could be chances for them to realize it by individual initiative, family support, and policy protection.

Acknowledgements

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The Effects of Teacher's Salary on Learning Outcome

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Abstract

The correlation between teachers' salaries and student achievements is often debated. Many factors might impact students' learning outcomes, but this paper only focuses on analyzing learning outcomes related to teachers' performance, which also relates to teachers' salaries. Data in this study is collected and analyzed by using a quantitative approach. Secondary data of PISA study results and teacher salaries in 2018 in selected thirty countries is obtained from OECD and GTSI. The investigation of this research, which entails looking into the many different nations that were picked for investigation, gives us an understanding of the connections between those nations. This research aimed to examine the teacher's salary effects on learning outcomes. Statistical tools such as simple percentage, mean, and linear regression were employed to reach the research outcome. Using the result from the data analysis, we found that 86.7 percent of countries share a parallel correlation between the teacher's salary and learning outcomes. In comparison, the remaining 13.3 percent is explained by other explanations outside the variable used in this study. The findings revealed a strong positive correlation (*Pearson correlation result = 0.637* between teacher salary and learning students' learning outcomes. The prediction of learning outcomes showed by the linear regression equation of learning outcome= - 65830.681 + 204 * teachers' salary. The findings suggest that the teacher salary may be further improved to enhance their students' learning outcomes.

Keywords: Learning Outcome, Teacher's Salary, Teacher Performance

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Introduction

A salary is an amount paid for the job, regardless of the number of hours worked per month (Torrington, 2005). In this sense, teachers' salaries must be set high enough to motivate and attract good employees. They must also be fair because pay must accurately reflect the value of the work performed. Student achievement is defined either broadly or narrowly. In a narrow definition, students' achievement is measured by a standardized test. The broad definition of learning outcome refers to social skills and personal growth, which under this definition cannot be measured by standardized tests (Ballafkih, 2019). Hence, this paper analyzes the students' achievement merely narrowly defined by analyzing students' learning outcomes according to PISA studies in 2018.

It also has been argued that school factors are not the strongest predictor of achievement. Indeed, a student's social-class background and neighborhood attributes matter more (Coleman, 1990). The social capital frame illuminates the local actors and shapes children's success in school as well. Checci (2006) also argues that the proportion of children from poor families with the level of highest-level schooling depends on their ability if it exceeds the threshold (p.117).

Therefore, school plays an especially key role in student achievements. School helping student to be success. A teacher is one of essential elements in school. High quality of school associated with the quality of teaching and learning process.

There are some factors that can give effect on teacher performance. The implementation of rewards and punishment-based system improve the employee performance to be more motivated (Zulita, et al. 2021), which would improve the learning outcome as well. Standard for teachers also outline specific knowledge and help to understand learners' needs, how to choose effective way for learners, and assist their development and growth (Egeberg, et al. 2016).

Education is often highlighted as a powerful for overcoming the crisis, but on the other hand investments in education are not satisfying for teachers. Society who has faith on human capital believe that student will success mere by their own affects to teacher's salary, hence teachers' salary was lower rather than another field. Those who are responsible for teacher's salary, that teacher's salary should not be higher, do not know that increasing the salary may affects the educational achievements of students' learning outcome indirectly.

To provide the decent quality of education, schools must retain the effective teachers. A good environment and adequate compensation are better for attracting and retaining good teachers and motivating them to do their best. Sampson's research (2019) shows that fringe benefit had statistically significant and positive effect on teachers' job performance. Similarly, Munandar's (2019) research found that teacher professionalism is 96.3% influenced by the well-being and motivation of each individual. While Suharmoko's research (2021) indicate that teacher professionalism has a positive and significant effects by 64.3% on student's achievement.

Decreasing teacher's salary will affect teachers as well as students' learning. A study by Lyimo (2014) found that inadequate teacher salaries lead teacher to engage in other economic activities and disrupt student learning. In addition, many teachers have left school for better-paying professions. Therefore, the teacher shortage affects student learning. Similarly,

Katete's (2020) study shows that delayed teacher payment leads to poor classroom preparation, poor student performance on exams, lack of hands-on learning, poor classroom attendance, poor practices, and poor classroom management. While Bonney's research (2015) shows the opposite, that although the teacher professionalism qualification in Ghana was high, it did not reflect much in the performance of the students.

Ree, et al. (2012) stated that increasing the teacher's salary does encourage teachers' motivation and helped them to teach better and effectively. But it not shown yet that improvements in teachers' motivation and effectively necessarily increase the student' achievement. Ree, et al. (2018) also show that paying teacher high salaries did not improve learning outcomes. A good governance system with conditional payments in the distribution of teacher salaries is an effective policy option to increase productivity.

Teachers are one of the most important resources that determine the quality of students' education. If teachers are not paid on time, they will not be able to teach regularly and will tend to be work elsewhere. The purpose of this study was to address the problem of teachers' salaries and benefit to determine the impact on teaching and learning. According to Nyangarika, et al. (2020), most research has focused on student motivation, but little has been done on teacher motivation.

This phenomenon makes sense not because teachers do not work by willingness, but because teachers' welfare itself not fulfilled yet. Maslow's theory of hierarchy of need suggest human to fulfill the survival need before able to follow the being needs such as becoming a teacher (Woolfolk, 2016). When the teachers do not fulfill their basic needed yet, it would be difficult for them to achieve into their higher needs.

Rand's research (2006) conclude that better average learning outcomes associated with higher salaries of a teacher, because higher salary attracted more effective teacher (p.26). Research by Paolini's (2015) argue that to have a competent community of learners, required well prepared and well experienced instructors, because good instructors will stimulate students' interest through active learning, they set high expectation to student and show concern for their students' learning and growth (p.32).

It has been argued that teacher's salary giving effects on learning outcome, and in some case, learning outcome does not improve when the teacher's salary improved. Therefore, this paper aimed to clarify this phenomenon using analysis on PISA 2018 results and to see on what extent does the teacher's salary effects on learning outcome, which are related to student performance in Indonesia. Is teacher's salary does effect on student learning outcomes? If it does, to what extent that it has impact?

Method

1.   Instrument

Data is obtained by collecting and analyzing the documentation on student achievements and teacher's salary, which in this case measured by the analyzing the results of the data from PISA's 2018 result (source: OECD) to represent the learning outcome. Apart from PISA's 2018 results, Global Teacher Status Index data on teacher salaries in 2018 are used to examine the relationship between the level of teacher salaries and learning outcome in thirty

countries that participated in PISA 2018. The thirty selected countries were considered as data because it has both data of PISA score and teacher's salary.

2.   Procedures

The data were sorted in two ways, first was descending the PISA's score 2018 and second was descending to the amount of teacher's salary, then the descended data was grouped and analyzed. Statistical tools such as simple percentage, mean, and linear regression were employed to reach the research outcome.

A simple percentage used for analyzing the demographic characteristics of the learning outcome, then linear regression was used to examine the effect of teacher salary on stdents' learning outcome.

3.   Research Design

Descriptive analysis was utilized based on sorting, grouping, and calculating percentage on the data of PISA score 2018 (OECD, 2018) and teachers' salary 2018 (GTSI, 2018). Then, the software SPSS version 22 was used to give prediction of teachers' salary toward learning outcomes.

This paper will elaborate the connection between teachers' salary and students' learning outcomes, as well as the phenomenon which might be seen in result analysis. The study of this research in selected countries gives us an insight into their interrelationship.

Result and Discussion

Average teacher salaries in selected countries when arranged descending by using PISA 2018 scores are shown in the table below.

Table 1: Teacher's income sorted by PISA's score 2018 with selected countries

No	Country	Reading	Math	Science	Mean PISA Score	Teacher's salary Per year (USD)	Salary average
1	B-S-J-Z China	555	591	590	579	40,821	41,396 USD
2	Singapore	549	569	551	556	50,249	
3	Japan	504	527	529	520	31,461	
4	Korea	514	526	519	520	33,141	
5	Canada	520	512	518	517	43,715	
6	Finland	520	507	522	516	40,491	
7	UK	504	502	505	504	31,845	
8	New Zealand	506	494	508	503	33,099	
9	Netherlands	485	519	503	502	43,743	
10	Germany	498	500	503	500	65,396	
11	Switzerland	484	515	495	498	77,491	33,561 USD
12	Czech	490	499	497	495	18,859	
13	US	505	478	502	495	44,229	
14	France	493	495	493	494	33,675	
15	Portugal	492	492	492	492	35,519	
16	Spain	486	481	483	483	47,864	
17	Russia	479	488	478	482	5,923	
18	Hungary	476	481	481	479	16,241	
19	Italy	476	487	468	477	33,630	
20	Israel	470	463	462	465	22,175	
21	Turkey	466	454	468	463	30,303	17,585 USD
22	Greece	457	451	452	453	21,481	
23	Chile	452	417	444	438	20,890	
24	Malaysia	415	440	438	431	18,120	
25	Colombia	412	391	413	405	18,806	
26	Peru	401	400	404	402	12,478	
27	Brazil	413	384	404	400	12,993	
28	Argentina	402	379	404	395	10,371	
29	Indonesia	371	379	396	382	14,408	
30	Panama	377	353	365	365	16,000	
Average					**474**	**30,847**	**30,847**

Source: from OECD PISA 2018 (https://doi.org/10.1787/b5fd1b8f-en) and GTSI 2018 (https://www.varkeyfoundation.org/what-we-do/research/global-teacher-status-index-2018/)

Percentage of countries according to their teachers' salary and teacher's average salary are shown in the table below.

Table 2: Teacher's salary sorted PISA 2018 score in selected countries

No	Country	Teacher's salary Per year (USD)	Percentage	PISA Score (2018)	
1	Switzerland	77,491		498	
2	Germany	65,396		500	
3	Singapore	50,249		556	
4	Spain	47,864		483	
5	US	44,229		495	
6	Netherlands	43,743		502	Teacher's salary of 10 top countries in PISA 2018 score were above average
7	Canada	43,715	53.3% countries are above-average salary	517	
8	B-S-J-Z China	40,821		579	
9	Finland	40,491		516	
10	Portugal	35,519		492	
11	France	33,675		494	
12	Italy	33,630		477	
13	Korea	33,141		520	
14	New Zealand	33,099		503	
15	UK	31,845		504	
16	Japan	31,461		520	
17	Turkey	30,303		463	
18	Israel	22,175		465	
19	Greece	21,481		453	
20	Chile	20,890		438	
21	Czech Republic	18,859		495	
22	Colombia	18,806	46,7% countries are below-average salary	405	Teacher's salary of 10 bottom countries in PISA 2018 score were below average
23	Malaysia	18,120		431	
24	Hungary	16,241		479	
25	Panama	16,000		365	
26	Indonesia	14,408		382	
27	Brazil	12,993		400	
28	Peru	12,478		402	
29	Argentina	10,371		395	
30	Russia	5,923		482	

Source: from OECD PISA 2018 (https://doi.org/10.1787/b5fd1b8f-en) and GTSI 2018 (https://www.varkeyfoundation.org/what-we-do/research/global-teacher-status-index-2018/)

Selected countries can be classified into two groups based on their PISA 2018 score. The first group consists of countries that achieved score above 474 (the average) and second were whose achieved score below average results, 474.

According to table 1., top ten countries in PISA's 2018 score have the highest average salaries. 100% of top ten countries have salary above the average salaries (with average on 41,396 USD) from other countries, which is average on 30,847 USD. Followed by the teachers in the middle range of PISA's 2018 score, their average salaries are 33,561 USD, above from the average salary from all countries. It also found that student in ten countries with the lowest PISA's scores in 2018, have teacher with salary below the average salary.

100% of bottom ten countries were receiving salary below average of all countries with average only by 17,585 USD in average.

From table 2, teacher from 53.3% countries received salary above average, while teacher from 47.7% were received salary below the average. This observation has shown that low on teacher's salary has correlation with learning outcome. Which, lowest PISA's 2018 score were on countries with teacher who has not paid properly (under the average of teacher's salary) and the highest PISA's 2018 score were on countries with teacher whose received salary above average.

However, the percentage of the teacher with salary above average in middle range of PISA score 2018 were only 60% with four countries that have below average salary. They are Czech, Russia, Hungary, and Israel. The author also found two phenomena in this middle range. There are two countries that have the lowest teacher's salaries as well as the highest teacher's salaries of all the countries selected for this study. The lowest salaries are found in Russia, with amount only 5,923 USD per year of teacher's salary, but gain score up to 482 based on PISA 2018 result test. The highest salary of teacher's salary are found in this middle range as well, where Switzerland pay teacher with 77,491 USD per year, which is double from average salary for teacher, but the score were 498, different by 16 points with Russian.

From this finding, 26 out of 30 countries (86.7%) show the linear correlation between the teacher's salary and learning outcome. Which means that from this observation, we can say that the teacher's salary effects on students' learning outcome. However, from the phenomena by Russia and Switzerland learning outcome, we also know that countries with the highest teacher salaries do not necessarily have the highest PISA's 2018 scores, and similarly, countries with the lowest teacher salaries do not necessarily have the lowest PISA scores.
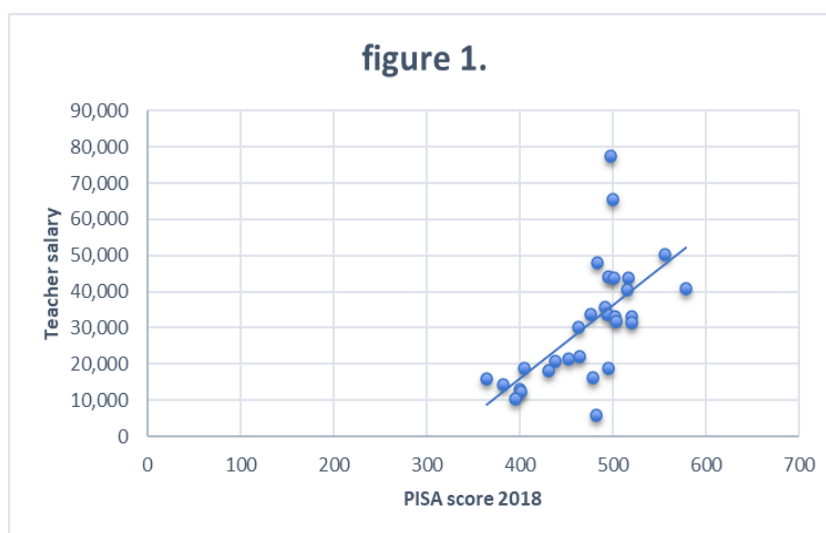
Figure 1: Correlation between teacher salary and students' learning outcome

The scatterplot and the value of correlation coefficient (r) was measured and found 0.637 which shows a strongly positive correlation between teacher salary and students' learning outcome in 30 selected countries.

ANOVA [a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3202093232.832	1	3202093232.832	19.078	.000[b]
	Residual	4699658442.534	28	167844944.376		
	Total	7901751675.367	29			

a. Dependent Variable: salary

b. Predictors: (Constant), Avg

Figure 2: The effect of teachers' salaries on students' learning outcomes

The average of the salary statistically significantly predicted learning outcomes. $F_{(1,28)}$ =19.078, p<0.001

Model Summary [b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.637[a]	.405	.384	12955.499	2.329

a. Predictors: (Constant), Avg

b. Dependent Variable: salary

Figure 3: Model Summary

63.7% of the variation on students' learning outcomes is explained by the teachers' salary.

Coefficient [a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	-65830.681	22260.255		-2.957	.006	-111428.747	-20232.615		
	Avg	204.091	46.726	.637	4.368	.000	108.377	299.805	1.000	1.000

a. Dependent Variable: salary

Figure 4: Regression analysis result

Students' learning outcomes= -65830.681+204*teachers 'salary. Thus, the students' learning outcomes results can be predicted using the linear equation.

Increasing teacher salary unconditionally such us doubling of base teacher salaries would not lead to better education quality, because unconditional pay increases did not necessary increase the worker productivity (Ree, et al. 2018). This may help to explain why Switzerland who pay highest for the teachers don't get the highest PISA score in parallel.

Teacher is the human capital that needs to be continuously multiplied, and teacher competence and motivation has shown the positive meaning for improving the teacher performance (Madjida, et al. 2020). We believe that the phenomena that we found in Russia can be explained by this theory.

Conclusion

From this research, it concludes that teacher salary does effect on learning outcome. Countries with above average teacher salary have students with high learning outcome, and so do the countries with below average teacher salary, they have lowest learning outcome based on PISA score 2018. Despite of some phenomenon in middle range learning outcome, decent salary is needed for teachers to reach the expected learning outcome. However, author believe that the financial arrangements in the teacher recruitment system is deemed necessary for researchers to continue the realization of the expectations of this research. Therefore, further research that can provide valid explanation of the phenomenon that found in four countries, especially Russia that were found totally contrary with the finding is needed.

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Entrepreneurship Education From University Through Banking:
A Real-Life Business Context

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Abstract

Entrepreneurship changes one's quality of life as well as fosters the growth of the economy by generating earnings through new business. However, the journey of women entrepreneurship is not that easy as women suffer from a lack of knowledge, experience, networking, creativity, etc. Many government and non-government organizations are utilizing women entrepreneurship education to help women penetrate markets. Therefore, teaching entrepreneurship can be beneficial as such education can make women confident enough to build a fundamental base as an entrepreneur. Entrepreneurship education has become an important part of business education because the variety and heterogeneity of entrepreneurship are sufficient to be offered in the form of a course in university. Some universities offer entrepreneurship courses for women entrepreneurs where they can learn entrepreneurship in a traditional system. In consideration of openness and empathy, a flexible learning environment is preferred rather than a hierarchical structure. We conducted a qualitative case study of City Alo in Bangladesh, a division of City bank, which offers entrepreneurship education in collaboration with a university in addition to small and medium enterprise (SME) services for women entrepreneurs. Usually, banking involves frequent communication with entrepreneurs, so banks know well about the struggles of entrepreneurs. Semi-structured questionnaires were used to conduct interviews with City Alo officials and entrepreneurs. Entrepreneurs often hesitate because they are not confident enough to operate their business successfully. City Alo provides entrepreneurship education for real-life business contexts to enhance entrepreneurship skills from an individual, practical, motivational, contextual, and service-related perspective to accelerate women entrepreneurship.

Keywords: Education, Entrepreneurship, Women Entrepreneurship, Banking

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1. Introduction

Generating income is highly desirable to overcome opportunity barriers, and entrepreneurship expands employment opportunities for people in need. The marketplace accelerates economic growth, but knowledge and experience barriers are limits to market participation. In particular, women in entrepreneurship face difficulties in getting the opportunity to work independently due to a lack of education, capital, contacts, and such personal challenges make them demotivated (Anggadwita & Dhewanto, 2016). Haddad et al. (2021) pointed out that women face difficulties in getting the opportunity to generate earnings because of knowledge barriers. Women can be lacking in terms of resources and are thus not able to create new opportunities for themselves even though the entrepreneurship field is very prospective for work. Bullough et al. (2015) argued that skill-based training, education, and funding for innovation are important issues for women entrepreneurs as literacy, inexperience, and awareness are big problems for all women (Solotaroff et al., 2019). Easy access to entrepreneurship opportunities expands work opportunities for women. Therefore, many social enterprises and their national and international partners and donors have been playing a significant role. Though many government and non-government organizations focus on women entrepreneurship education to help women penetrate markets and help women to become self-dependent, overall women's working space is not satisfactory. It is a matter of regret that many women still cannot utilize educational facilities to improve their earnings. Women are still kept away from entrepreneurship opportunities and new avenues for business.

Entrepreneurship educational opportunities can enable women to become independent financially by utilizing entrepreneurship as a profession (Pruett, 2012). City Alo in Bangladesh, a division of City bank, offers entrepreneurship education in collaboration with a university in addition to small and medium enterprise (SME) services to women entrepreneurs. By taking part in this collaboration, women get the opportunity to become successful entrepreneurs. This study deals with a promising education system that is used in this collaboration for women who are interested in entrepreneurship and creating income through self-employment to ensure economic development.

1.1. Research objective

To achieve the target of the study, the strategy used in the innovative entrepreneurship education system in the bank and university collaboration and the involvement of women entrepreneurs are analyzed. By understanding how women entrepreneurs are involved, the effectiveness of this education system is analyzed. Through this analysis, we can contribute to improving the present conditions of women entrepreneurship. This study could play a role in entrepreneurship development by highlighting new business opportunities from the viewpoint of entrepreneurship education. To carry out the analysis, we formulated two research questions:

1. What are the strategies to provide entrepreneurship education?
2. How has women entrepreneurship been facilitated through education?

The organization of this paper is as follows. First is an introduction that includes the research problem, significance, objectives, and questions. Then, we provide a broad view of literature that includes the barriers and limitations to women entrepreneurship. After that, we present the methodology of this research including case organization, research strategy, data

collection process, and method of data analysis. Next is a discussion includes the involvement of women entrepreneurship in education from university through banking. Finally, theoretical and practical implications of the study, limitations, suggestions, and directions for future research are touched on.

2. Literature review

2.1. Unfavorable working conditions of women entrepreneurs

New business opportunities enable women to become financially independent in society. Women entrepreneurs can improve their quality of life as well as take part in fostering the growth of the economy. Women want to take part in new entrepreneurship initiatives to generate earnings for themselves by getting engaged in new businesses (Duflo, 2012). However, women's business activities face social barriers even though women are eager to join new businesses to improve their skills and earnings. Among the many obstacles women entrepreneurs face, they are often the target of ridicule in the community. Many organizations are utilizing women to help women penetrate markets, but despite this, women entrepreneurs still face several barriers. These barriers are a societal problem in any country. Solotaroff et al. (2019) mentioned that societal, behavioral, and knowledge constraints prohibit women entrepreneurs from getting involved a variety of work and create barriers to their activities.

2.2. Considerable issues for women to be self-dependent

Various responsibilities, a lack of networking and communications, poor education, and social obstacles are barriers to entrepreneurship. According to Akehurst et al. (2012), the social, economic, and legal characteristics of many regions differ and do not allow for a perfect environment for women entrepreneurs. Society, self-confidence, lack of motivation, conservative attitudes, resistance to change, legal factors, lack of experience, and traditional beliefs are the major barriers to women in entrepreneurship (Liu et al., 2021). Hoogendoorn et al. (2019) showed that women entrepreneurs are lacking in systematic development, have low awareness of government schemes, are deprived of education, etc. A lack of financial freedom, skill, self-confidence, flexibility, and contacts is an especially major problem for women (Duflo, 2012). Panda (2018) identified that education, environment, social-cultural norms, access to resources, and gender sensitivity are barriers to women entrepreneurship.

2.3. Entrepreneurship knowledge and education from university

Zahra and Wright (2016) indicate that a lack of necessary experience affects the efficiency of women entrepreneurs as inadequate facilities prohibit them from becoming successful in their own business. Getting a high enough volume of capital alone is not enough until women entrepreneurs are given the proper direction to utilize it. Very few women have the proper education and experience in their working area. Many women cannot reach their selling and marketing potential because of their low technical and management skills. Women face marketing, cash flow, and management problems in entrepreneurship (Weerakoon et al., 2020). Women entrepreneurs are not that expert at utilizing market opportunities and are also not so aware of strategy. A lack of business knowledge is a barrier to their ability to expand their business in the way that they desire. Entrepreneurs who have taken university courses feel more confident in expanding their business in comparison with less educated women. A poor systematic infrastructure hinders women where communicative education is the main strategy in development (Stamboulis & Barlas, 2014).

2.4. Importance of entrepreneurship from government and financial institutions

Proper regulative factors and various rules provide benefits to women that enable them to become self-dependent (Rosca et al., 2020). Regulation needs clear and effective supervision. The government can improve the economic and non-economic situation for women through action as it has the power to develop a socio-economic structure for women entrepreneurs. A system that is conducive to business for women decreases the risk of women facing inequality issues (Smith & Chimucheka, 2014). A good number of women have access to financial institutions to manage their capital. The direct lending procedure is done by an NGO, and many statistics show that women are being funded. Banks provide credit to women entrepreneurs under a microcredit system (Aninze et al., 2018). However, most women cannot expand their business and are not getting the desired success due to a lack of expertise in the entrepreneurship field (Wakilur Rahman et al., 2012). A microfinance program is one of the best ways to improve women entrepreneurship. However, this program has limitations because of loan and return complications, so it is not successful among all areas for all types of women (Ukanwa et al., 2018).

3. Methodology

3.1. Research strategy

The strategy used for research is very important in research design. Yin (1994) identified three conditions that determine research types: the research question, degree of investigator's control, and focus on the contemporary event. A case study is an approach to developing an in-depth understanding of a relatively unexplored area. The goal of the case study research is to collect, present, and analyze the data fairly (Yin, 2018). Maxwell (2012) noted that qualitative research is helpful to understand participants' experience, context, and the influence on their behavior. Qualitative researchers want to understand the meaning of how any construct makes sense of the experience of the world (Merriam & Tisdell, 2015).

3.2. Case organization

City Alo is a women banking division of City Bank in Bangladesh. City Alo branches are available in many places where women customers can access the banking facility and participate in discussions on business initiatives. City Alo offers several categories of services to facilitate women. Despite being a conventional bank, City Alo collaborated with North South University, which is a renowned private university in Bangladesh, and offers entrepreneurship education to women entrepreneurs. City Alo supports women entrepreneurs and helps them to expand entrepreneurship by providing this education.

3.3. Data collection

A case study needs detailed data collection that involves multiple sources and interviewees having a focused conversation regarding questions. We adopted a semi-structured interview strategy (deMarrais & Lapan, 2003). The interview was conducted from October to November in 2021. The interview involved 25 interviewees, that is, 5 City Alo officials and 20 entrepreneurs enrolled in the City Alo entrepreneurship education. For the case study, we analyzed the data qualitatively.

3.4. Analysis

A thematic analysis was conducted. A thematic analysis searches for related phenomena (Saldana, 2021). To analyze the interview questions and answers, we converted the data into Microsoft Word and input the data in MAXQDA (Silver, 2017). A large amount of data on the education initiatives of City Alo and women entrepreneurs came out, and we highlighted the key phrases and extracted the necessary concepts on the basis of the statements made by the interviewees. We passed through the data to create initial categories. After that, we combined the key categories into major and broad categories. Finally, by using codes, we shifted toward theoretical dimensions.

4. Results and Discussion

4.1. Involved in entrepreneurship education

Entrepreneurship education has become an important part of business, so it is not only the target of universities but also of banking. City Alo has developed entrepreneurship education related to real field-based activities. It focuses on practical and academic learning through all types of developmental activities, which increase the interest in knowing and learning.

Customer journey map	Awareness	Consideration	Conversion	Onboarding	Advocacy
User Action	Research, friends, colleagues, SNS	Search various financial, nonfinancial institutes for entrepreneurship support program	Select bank for finance and entrepreneurship support	Use platform to prove own self and update basic business knowledge	Share experience, recommendations, word of mouth
Touch point	Search website to consider offers, go to bank and learn in detail	Loan procedure, entrepreneurship course content, and success stories of entrepreneurs	Consult with employees and join entrepreneurship course	Gain knowledge from various kinds of entrepreneurship support, present own business model and get feedback	Customer reviews from referral websites and story sharing on SNS
Pain point	Difficult to overcome entrepreneurship education, knowledge, and experience related barriers	Difficult to access entrepreneurship support	Lack of consultation and educational guidelines in entrepreneurship	Personal responsibility to guide own self properly in entrepreneurship	No mentoring, follow up, and consulting scope
Solution	Provide entrepreneurship related necessary support	Offer more details about women entrepreneurship education	Support for generating innovative business ideas	Entrepreneur friendly education, establish long term relations, real-time support	Necessary follow up and sharing on website

Table 1: Entrepreneurs' journey map for accessing entrepreneurship needs

City Alo entrepreneurship education works as an accelerator where practicing business content helps to gain experience as an entrepreneur. Table 1 shows a summary of a customer journey map that includes several steps to identify entrepreneurship educational barriers and their solutions in the university-bank collaboration. Entrepreneurs have several barriers and

do not get easy access to entrepreneurship because of a lack of entrepreneurship education. Usually, entrepreneurs visit many banking and non-banking financial institutions to get entrepreneurship support, but the support is limited and cannot play a better role to improve the quality of entrepreneurs. Therefore, the university education through City Alo has tried to contribute to this field. Entrepreneurs visit the bank and have a discussion regarding entrepreneurship and get engaged in entrepreneurship education. This education helps to modernize their business and make them confident because doing so leads to having an experience with real-field entrepreneurship problems and solutions. Table 2 indicates entrepreneurship education that is offered by City Alo with the help of the university to entrepreneurs. It shows topics that are covered by the education program. Not only general lectures but also skill-based workshops are provided for intense educational support.

Contents	Topics covered in entrepreneurship education
General lectures	Introduction, Business model canvas and human resource management, Essentials of forming a business, Marketing, Business canvas model, Technology world, Capital, Cash flow and loan management, Pricing and volume, Sourcing, Cost control and purchasing, Networking and session on SME, etc.
Skill-based workshops	Sales strategy, Corporate etiquette, SME and start-up in digital platform, Entering in disruptive education, Getting back to business, Women in workplace, Tax implications and guidelines, Digital marketing and social media, Career transition, etc.

Table 2: Topics covered by entrepreneurship education

4.2. Entrepreneurship education from university through banking

City Alo education offers a broad range of business activities. Women entrepreneurs discuss their business, social affairs, ideas, experience, and personal knowledge to solve business-related problems. Entrepreneurs acquire self-efficacy and knowledge and take action to achieve their goals. The sharing of ideas helps in creating new ideas to compete in the entrepreneurship field where entrepreneurs focus on gaining knowledge and creating ideas. Entrepreneurs engage in networking to have entrepreneurial and organizational connections, which are very important for entrepreneurs. Networking makes it possible to get lots of information and prospective customers as well. This education not only focuses on buying and selling strategies but also increases entrepreneurial competitiveness. Basic business terms are taught through which training and experiential learning is transferred to transform ideas. Entrepreneurship knowledge is developed by thinking and reflecting. The application of theoretical and practical education is related to the acquisition of developmental skills where open learning motivates one to adapt in daily business activities. Practicing through challenges balances entrepreneurship decision-making in the broader entrepreneurship field where gaining knowledge from learning helps to achieve success in practical business.

Table 3 indicates that general business ideas promote entrepreneurs individually. In practice, they participate in many strategic and behavioral workshops to better learn about entrepreneurship and improve their personal skills. Motivation is also very important for carrying out entrepreneurship goals so that entrepreneurs can have conversations with existing entrepreneurs to learn key techniques for successful entrepreneurship.

Effectiveness in learning	Bank and university collaborated Entrepreneurship education	Progress in entrepreneurship
Individual	Business introduction with necessary business terms and knowledge.	Receiving more effective educational content to develop entrepreneurship qualities.
Practical	Various business related strategies and corporate etiquette to make career transition.	Practically engaging in workshop leads to field work and helps to establish business.
Motivational	Entrepreneurs are invited to inspire entrepreneurs by sharing their journey.	External sources ensure real life experience in entrepreneurship, which tends to create motivational entrepreneurship environment.
Contextual	Creating own business model to acquire knowledge and feedback from various organizational employees.	This education focus more on real field issues and scope as well as business opportunities where active involvement of participants gets priority.
Service	Real time support for long term relations, so entrepreneurs can discuss their difficulties after completing course.	Entrepreneur-friendly education through regular follow up eases the journey of entrepreneurship.

Table 3: Bank-university collaborated entrepreneurship education

On the basis of real business contexts, entrepreneurs create a suitable business model in order to get feedback and suggestions from various invited organizational employees such as multinational employees, people involved in banking, university instructors, etc., which leads them to real-life business suggestions. Finally, these entrepreneurs can establish a long-term relationship with the bank and university for necessary business support through real-time communication.

4.3. Facilitating women entrepreneurship through real-life business education

Entrepreneurs tend to progress in business after attending entrepreneurship programs. Practicing in the context of a real field through an educational program helps create personal development. When entrepreneurs are offered this type of educational environment, they can develop their confidence to generate new business ideas. Various tasks, analyses, and discussions are the foundation of an entrepreneur. Entrepreneurs listen more from stakeholders, financers, friends, experienced people, customers, etc. and concentrate on new idea generation to get success. Figure 1 depicts City Alo's collaboration with the university and the entrepreneurship learning platform it offers to entrepreneurs. Entrepreneurs are engaged in this platform individually, practically, motivationally, contextually, and on a service basis, so these learning initiatives accelerate success in entrepreneurship.
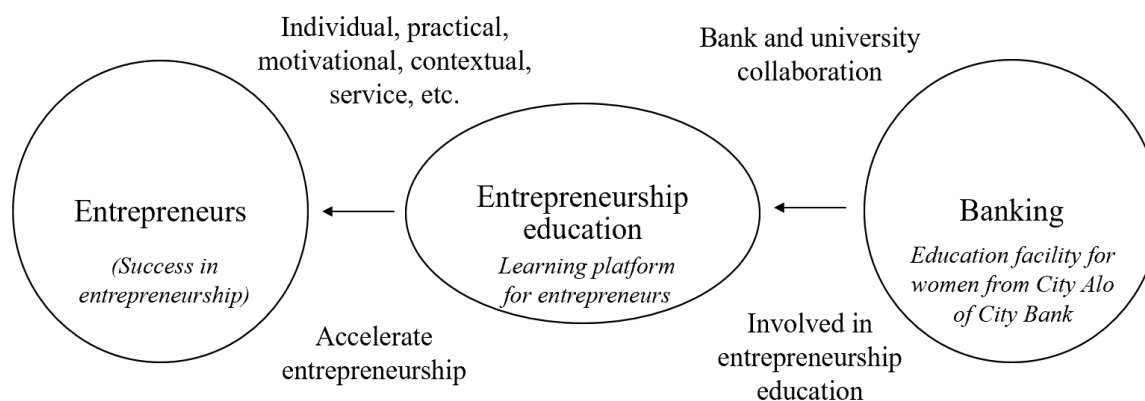
Figure 1: Offering entrepreneurship education in real-life business context

5. Conclusion

5.1. Theoretical implications

This entrepreneurship education creates a bond between society and private entities so that the social community gets transformed and improved by City Alo entrepreneurial initiatives. Entrepreneurs consider entrepreneurial problems and solve them through the creativity and innovativeness achieved through education (Pathak & Pathak, 2010). Entrepreneurs are innovative and creative in creating strategies for self-employment. This is one good way for women to develop resources to overcome barriers to entrepreneurship and become successful entrepreneurs (Kirkwood et al., 2014).

5.2. Practical implications

Women entrepreneurs not only share their experience in educational training but also have access to contact other entrepreneurs, City Alo officials, and the university directly. They can exchange their personal perspective, opportunities, barriers, and problems, which allows them to share their thinking and experience (Elenurm & Reino, 2013). Entrepreneurship evolves around the utilization of resources and strategies to enhance control in the community (Dutta & Sobel, 2021). Women entrepreneurs can enhance their control by utilizing self-employment opportunities and become privileged financially, socially, and personally through entrepreneurship development (Higgins et al., 2013).

5.3. Limitations and future direction

Though the case study involved banking in Bangladesh, implementations of the above educational initiative in other sectors could be studied. In this research, we tried to learn about innovation in education. We discussed entrepreneurship education in regards to banks and universities, but entrepreneurship education is a broad concept, so the scope was quite limited. Some further initiatives from other organizations should be researched to explore other dimensions.

Acknowledgements

Appendix A.

Sample of individual entrepreneur journey map to understand touch points and pain points

Customer journey mapping	Awareness	Consideration	Conversion	Onboarding	Advocacy
User Action	Other entrepreneurs look for solution	Entrepreneurship support program	Select a bank for finance and entrepreneurship education	Start consulting and join courses	Share experience, recommendations, word of mouth
Touch point	Search websites	Need to nurture ideas for existing business	Update basic business knowledge	Use platform and present own self	Course experience on SNS
Pain point		Several steps	Not everyone gets a loan	Only failure can teach	Entrepreneurs contact faculty members and bank
Solution		Emphasize workshop	Clear requirement to get all services	Emphasize customer feedback	Follow up for long-term success

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Learning to Test With Robots Collaboratively in Our Homes: "Mum/Dad, When Can I Play With It?"

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Abstract

Teaching postgraduate systems engineers, project managers or cybersecurity managers to test and evaluate modern complex systems requires them to evaluate a system with a degree of autonomy, some internal programming variables and some external mission and environment variables. Prior to COVID-19, students did this in collaborative groups in intensive attendance classes with a small line-following robot as the touchstone for their exploratory-based learning. Facilitated closely by the lecturer, teams would apply test design methods to determine and rank significant factors. They would then test again to model the robot and validate their modelled predictions for their robots across learning groups in a '*whole class*' capstone exercise. The COVID-19 restrictions across Australia forced the teacher and students to do the same collaborative learning in homes. Families often got involved in developing racetracks, procedures and testing for their '*adopted*' robot. At the same time, test runs would be '*farmed out*' between different homes, and results would be discussed extensively online. Contrary to the lecturer's expectation, the careful shift to distance learning brought considerable social learning benefits and valuable workplace lessons for students in organisation and communication. Pedagogical and curricula guidance is provided on structuring any such exploratory online pedagogy for these social learning benefits and avoiding some of the pitfalls.

Keywords: Exploratory-Based Learning, Online Learning, Collaborative Learning, Vygotskian Pedagogy

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Introduction

Many universities and schools have documented the impact of COVID-19 in forcing additional online learning. The impact on students and teachers has been demanding, exposing many disadvantages and advantages of the technologies used and some inconveniences and conveniences for students, families and teachers (Akpinar, 2021; Al-Areibi, Dickson, & Kotsopoulos, 2022; Cellini et al., 2021; Charbonneau-Gowdy, Pizarro, & Salinas, 2021; Logan, Ogurlu, Garbe, & Cook, 2021; Yeboah, 2022). According to Charbonneau-Gowdy et al. (2021), '*Recent stories from practitioners abound with reports of absenteeism, cameras and microphones turned off, inaction in forums and a general reticence on the part of learners to engage online.*' They argue that the poor engagement '*lies in the conventional instructional designs being used in these spaces and the teaching, learning and assessment practices they support.*' Logan et al. (2021) emphasise the importance of positively involving the student's family in home-learning education during asynchronous learning, while Al-Areibi et al. (2022) emphasise the need to develop a sense of class community during online synchronous learning sessions to help motivate students. Such research reinforces that contemporary e-learning theory can improve teacher practice. Equally, teachers may improve pedagogy from their experimentation and offer it to peers (Kepka, 2022). Such evolution is likely more straightforward in higher education, where the transition to e-learning was already underway before COVID (Allen, Seaman, Poulin, & Straut, 2016; Lay-Hwa Bowden, 2022; Swist & Kuswara, 2016).

This research article documents one teacher's serendipitous experience during COVID restrictions with modifying a postgraduate subject from face-to-face intensive teaching to online. The subject is *Advanced Test and Evaluation Techniques*. It is part of postgraduate master courses, mainly in systems engineering and project management. The teacher had previously been asked to consider moving this subject to an online mode like his other subject, in part to improve its reach and profitability. The teacher was reluctant, convinced that the inquiry and problem-based learning on a complex system needed close student interaction and teacher mentoring that would not transfer online. COVID restrictions provided the impetus for the move online. The teacher is an experienced educational researcher and online teacher using Vygotskian approaches and student peer critiquing. So despite his scepticism, he applied much theoretical and practical experience to the task. Student engagement in 2021 was impressive and sustained in a second online instantiation in 2022. The theoretical basis for the pedagogy used is outlined so that other teachers may seek to emulate the online approach in other contexts and to inspire future educational researchers to try the mixed approach to online subjects.

Literature

Recent meta-analytical research by Lai and Bower (2020) of 73 systematic literature reviews focused on technology in education reports that '*most of the reviews found that the use of technology improved learning outcomes and affective perceptions.*' Further, '*approaches involving interaction, gamification, constructivism, student-centred learning and feedback were most effective.*' In this vein, the curriculum and pedagogy used in this research are multi-dimensional, caused by the teacher's research into calculus reform decades ago (K. F. Joiner, 1999), where multiple approaches lead to a more inclusive curriculum (K. F. Joiner, Malone, & Haimes, 2002). The basis of the approach is *Constructivist* and, within that broad field, includes *Vygotoksian* methods to create discussion and stronger conceptions. The *Constructivist* aspects are to focus initially on the foundational concepts, or '*cornerstones,*'

then to scaffold increasingly complex and overlapping concepts before finally providing a unifying or '*capstone*' activity.

The Vygotskian aspects are more than establishing the now famous Zone of Proximal Development (ZPD) and extend toward evolutionary instruction akin to the interpretative research essay by Nardo (2021). There is an extension from the ZPD to guided discovery learning as set out by Glassman, Lin, and Ha (2022) in their three steps of preparation, volitional activity, and then evolving the scientific concepts into more organic, unified concepts through continued experimentation. Preparation involves '*establishing active interest for engaging in problem-solving activity.*' This stage also involves establishing '*trusted relationships*' where they cooperate '*on a problem as credible interlocutors/compatriots*' and as an '*interconnected community.*' The volitional activity is about creating opportunities for student groups to discover that '*their current conceptual thinking is not capable of finding a satisfying solution*' and then to find '*alternative approaches*' for their problem. The final stage is to exploit the proximal development in continued experimentation '*to integrate new ideas and thinking into their conceptual system.*'

This approach relies on collaborative learning and dialogical teaching (Reznitskaya, 2012; Vygotsky, 1968), extending on the author's research into the benefits of structured peer critiquing (K. F. Joiner, Rees, Levett, Sitnikova, & Townsend, 2021a, 2021b). According to Glassman et al. (2022):

> *Without interpersonal relationships it is far less likely learners will be motivated to voluntarily pursue difficult tasks and/or be willing to turn to others when they fall off the end of their ZPD in that pursuit. Successful instruction is dependent on others finding entry points for productive input into shared activities. This includes learners being open to new possibilities, and interlocutors being willing to offer appraisal and input with confidence and without judgment.*

Collaborative learning research reinforces the importance of the interactive mode for its efficacy. It is defined as '*instructional settings that allow a group of learners to collaboratively develop knowledge and understanding beyond the information contained in the given materials by building upon one another's understanding*' (Menekse & Chi, 2019) In particular this research uses group presentations online to have groups '*provide and receive feedback, ask each other questions, propose arguments and rebuttals, elaborate on each other's ideas, and so forth*' (Menekse & Chi, 2019).

Student engagement is generally accepted (Fredricks, Blumenfeld, & Paris, 2004) to have three aspects: '*i) behavioural engagement (i.e., active participation in academic-related tasks), (ii) emotional engagement (i.e., positive feelings experienced when performing academic-related tasks) and (iii) cognitive engagement (i.e., investment of mental energy and effort in thinking and learning)*' (Zhoc, Cai, Yeung, & Shan, 2022). The research by Zhoc et al. (2022) reinforced '*that wellbeing is positively associated with student engagement in online learning*' and that '*the positive association between the two remains valid even with the change to the mode of online learning.*' Further, they found that well-being is associated with cognitive reappraisal strategies, whereby students cognitively reflect on the emotional aspects. The cognitive challenges of teaching are significant and varied (Chew & Cerbin, 2021), especially online. The benefits of cognitive reappraisal to learning around retention and well-being are well documented in children (Davis & Levine, 2013), and the work by Zhoc et al. (2022) begins to extend that to online tertiary study. Similarly, research by Lay-

Hwa Bowden (2022) noted that for blended learning (i.e., primarily online), '*behavioural engagement was found to strongly determine students' well-being, self-efficacy and self-esteem*' and '*affective engagement determined institutional reputation and transformative learning*'.

The benefits of a pedagogy based on open-ended problem-solving through guided discovery continue to be documented, for example, by Mira Pratiwi, Gusti Putu Sudiarta, and Suweken (2020). Such an approach can also be called '*authentic project-based learning*' (APBL), defined as '*a pedagogical approach that prepares students to solve real-world highly ill-structured problems*' by having, inter alia, '*student teams take on one project spanning the length of the class*' (Rees Lewis, Gerber, Carlson, & Easterday, 2019). Gallagher (2015) outlines problem-based learning (PBL) using the following seven criteria from Barrows and Tamblyn (1980):

> *1. Learning is initiated and framed in the context of an ill-structured problem.*
> *2. Ill-structured problems are interdisciplinary.*
> *3. Learning is collaborative.*
> *4. Information learned during independent research is related back to the problem.*
> *5. Student's self- and peer-assessments are integral to class activity.*
> *6. Teachers' assessments of students are consistent with the goals of PBL, and*
> *7. Students become increasingly self-directed over the course of PBL experiences.*

Much of the pedagogy for criteria four through six can be in students presenting their solutions to the class community with open question and answer (Jin, Jiang, Xiong, Pan, & Zhao, 2022; Li, Moorman, & Dyjur, 2010). Such activity allows them to compare mental models and innovations, which adds to creative thinking and apprenticeship. In addition, the efficacy of inquiry-based peer-assisted learning has been established in several educational research contexts, showing increased student engagement, practical skills and process-specific knowledge (Brown, 2016; Gallagher, 2015; Jin et al., 2022), including by Li et al. (2010) in an online context.

Methodology

The subject has run yearly since 2017, in baseline face-to-face from 2017 to 2020 and twice online, 2021 and 2022. The baseline has run with between 10 and 24 students, while the 2021 and 2022 online versions had 13 and 17 students, respectively.

No deliberate research was undertaken when adjusting this curriculum, as it was done at short notice due to COVID restrictions. The extant records were combed and compared to theory to help explain the unexpected success. Student feedback comes from a standard set of university post-course records known as '*myExperience*' to improve the overall student experience. The questions used are available at the link:
https://www.teaching.unsw.edu.au/myexperience-survey-questions

For the baseline course, students in 2017 had agreed to be videoed for public relations, and several images used for the baseline course come from that video which can also be viewed (https://www.youtube.com/watch?v=ZK8dmC10AVo). Students in the online version also used a student-based forum on the subject's Moodle page, which was analysed to see what communication was being undertaken by word frequency and with some quotes that students

agreed could be used if anonymised. Students also volunteered to provide pictures from home that they agreed could be used for the conference.

No ethics approval was sought as the student comments and contributions are anonymous, have been agreed upon by the students individually and were collected for subject improvement, which includes this article.

Baseline Pedagogy

The subject outline remained unchanged between the baseline and online versions. The full subject description is available at the link: https://www.handbook.unsw.edu.au/postgraduate/courses/2019/ZEIT8034. Part of the 2022 subject outline is as follows:

> *Techniques taught include how to construct T&E plans to first screen for the key factors effecting response of a system, then model that system's performance and finally to validate performance of a system and its model.*

The robot system shown in Figure 1 is a touchstone throughout the subject whereby students return to it to apply and understand theory practically. It was chosen because it is exciting and the variables affecting its performance are internally programmed and externally through track variability. Such systems are complex to try to optimise with many different approaches.

Figure 1: Line-following robot used as the touchstone system in the subject (2017 video).

The learning objectives below for the subject also did not change between the baseline and the online versions:

> 1. *Develop robust (rigorous) test methods and data collection plans to account for system variance in multi-factor systems ....*
> 2. *Systematically assess and identify data ....*
> 3. *Analyse test data ... using graphical and multiple-response regression analysis to screen significant factors, determine adequacy of models and determine confidence in performance.*
> 4. *Evaluate (relate) test results from data analysis to determine design and operational significance ...*

On Day One, in intensive mode, the baseline pedagogy taught students the objectives of test design and analysis techniques, refresher statistics and a measurement system analysis technique. Students then conducted basic familiarisation on the line-following robot by building any continuous circle track using black tape on whiteboards before using a stopwatch to time the robot's laps. The measurement system analysis (MSA) technique estimates the measurement error within the variance over several different robot settings (runs), different operators and repetitions. This exercise is challenging but involves a relatively simple theory to apply. This activity ensures self-forming collaborative groups of three to five students establish a working relationship. The teacher and a tutor constantly roam and mentor students whenever they stall for lack of understanding, always providing multiple options wherever possible for techniques to encourage student ownership and diverse outcomes. A student group working on their techniques is shown in Figure Two. A wrap-up session has student groups outline and compare their results.
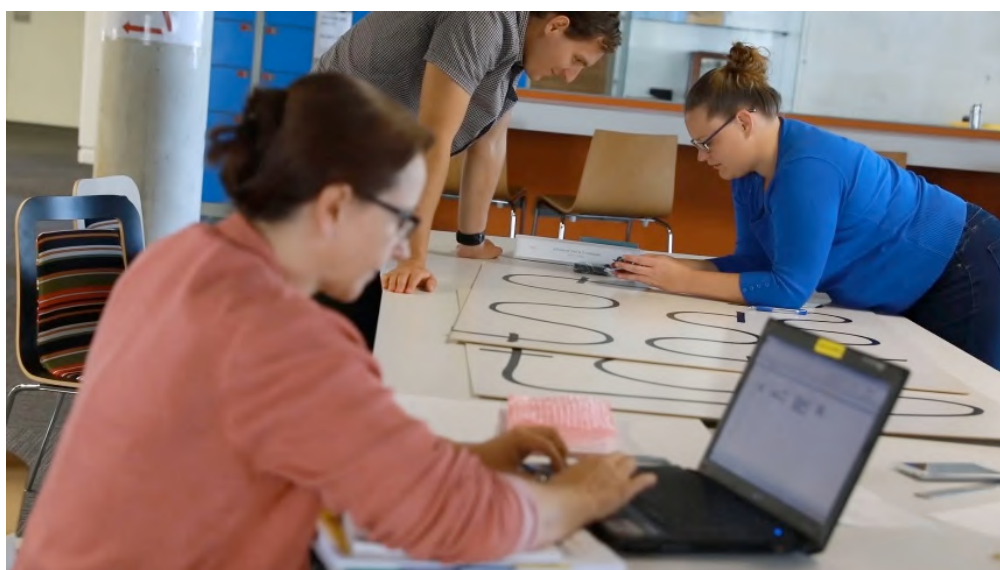
Figure 2: Students preparing test run materials to analyse significant factors in the baseline face-to-face mode (2017 video).

On Day Two, in intensive mode, the first theory on techniques for screening the most significant factors in any system is introduced. Students then return to their groups and use fundamental cause and effect and process flow techniques to form candidate factors to control, keep constant and tolerate as noise. These factors are grouped in a '*design of experiments*' diagram (Figure 3) before they execute a designed test to determine the most significant factors affecting the robot's completion time. Again, a wrap-up session has student groups compare results, with one of the main points of difference being whether they chose a two-level (linear) or three-level (quadratic) screening test design. The proportional-integral-derivative (PID) controller and basic acceleration principles ensure that those who chose a three-level design are rewarded for their extra test runs with more detail. Track production across multiple runs ensures that efficiency is always considered and discussed. Varying robot settings also cause some reliability concerns when the robot cannot stay on track so that some groups will strategise and explore those 'edge conditions' with an additional output of failure or success. Finally, the binary output creates some segway to later theory on logistics regression to get a better probabilistic prediction.
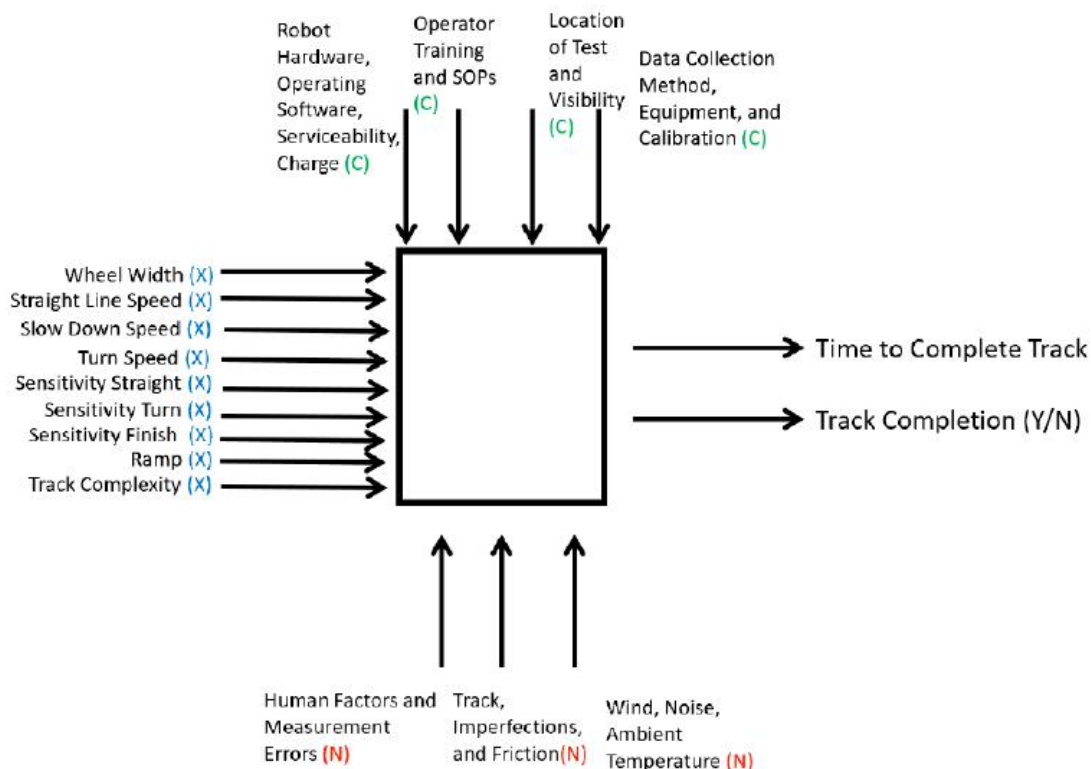
Figure 3: Example of multifactor and multi-output diagram used by students.

After more theory on modelling test designs, Day Three in intensive mode builds a more involved multi-factor model of the robot's performance for each group. Student groups usually have different track and robot setting factors and even different outputs; some will use velocity achieved and others distance. There is usually strong student ownership of their model and approach at the wrap-up session on Day Three, which is important to a shift in focus for Day Four. The switch moves from characterising the robot's performance in a model to validating the robot's and the model's usability. Validation test design theory is introduced and then used with the whole-course participation to generate a set of validation tracks. These validation tracks usually vary in length, corner diameter, number of corners and number of straights. Student groups then predict the performance of their robots on each validation track, both average completion time (or velocity) and expected variation on each track, choosing individual group robot settings if they wish. Student groups are then assigned different validation tracks that they then have other student groups visit to host the testing (Figure 4), which is essential for independence and to create constructive discussion. Student groups are usually surprised by their poor performance on some tracks due to a lack of variability and the final factors in their robot characterisation. A wrap-up session confirms how groups went relative to their predictions and creates lots of discussion.
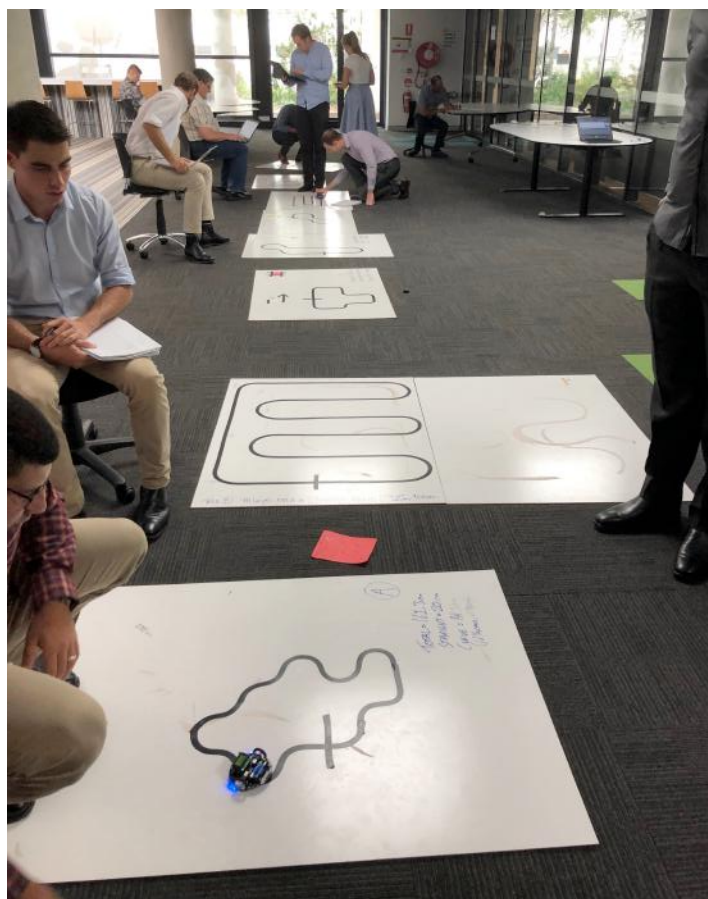
Figure 4: Students undertaking whole-course validation testing in face-to-face mode.

The intensive subject usually has some other theory and a knowledge test on Day Five. Students use the following months at home in part-time mode to repeat the process on a system of their own choice as an individual follow-up assignment.

Distance Pedagogy

The primary concern in moving the subject online was preserving student interaction. Each student was required to buy a robot and tracks, costing about AUD 250, organised well in advance. Student groups were still self-forming to encourage early communication and ensure students would respond constructively. A student forum on the subject Moodle page provided the means for communication. Students often sought to create groups in common cities to get together for testing, such as Melbourne, Canberra or Sydney. However, some recognised that they would be isolated and formed entirely online groups, for example, ' *Work From Home (WFH).*' One of the more creative examples of group seeking is given below, albeit heavily redacted to ensure anonymity:

> *Hello everyone,*
>
> *I am still without a group so I am keen … A little about me:*
> > *1) 4+ years in supporting …*
> > *2) 1-2 years experience in …*
> > *3) Recent experience in …*
> > *4) knowledge of …*
> *Not much experience but a hard worker.*

Lectures would occur for two hours in the evening one night a week, and tutorials and group presentations also last for two hours on a second night later in the week. Students sought the late time (7-9 pm) to allow sufficient time after work and family commitments. The gap between lectures and tutorials was to allow time for refreshing theory. Attendance for lectures was usually around 80 per cent, for tutorials around 50 per cent, and the assessed student group presentations around 95 per cent. One of the most significant concessions was only to have students perform the test design and analysis process on the robot system and not the second system of their own later. Instead, the former Assignment Two (Table 1) is replaced by an Application Proposal that they complete capturing how they would use the new techniques in their work or hobby. Students are assessed for group work through group presentations and then reflect individually on the outcome in submitted answers. In general, group presentations prepared students well for such reflection, especially the insight into other groups' approaches. The teacher would mentor groups a little during their presentations for everyone's benefit and in feedback to each set of reflective questions. There were three student groups in 2021 and five in 2022.

Student Interaction

Student interaction was high, beginning with establishing groups, overcoming logistics, and familiarising themselves with the robots and their track production. The teacher deliberately set high expectations for students to be able to program their robots and produce tracks so that students communicated and solved in groups and across the whole course using the forum. Four weeks were allowed for the set-up and the first somewhat benign exercise of an MSA, nearly a third of the time available, to get groups working effectively. Two examples of groups sending photographs are in Figures 5 and 6, while a Word Cloud of the student forum from 2021 at Figure 7. Figure 5, when expanded, actually shows the program used and what to vary, while Figure 6 attests to the results by '*snap chat*' for authenticity!

Figure 5: Home set-up program (student supplied).

Figure 6: Exchanging data between students - Run No. 2, Time on Track (student supplied).

Figure 7: Word cloud from Student Forum in 2021 analysed using MAXQDA®.

The Word Cloud analysis shows that group location is important and that key knowledge terms like the average and variance estimates (Y-hat, S-hat) and challenges like PID are being discussed. Pleasingly students are showing politeness like '*Hi*', '*happy*' and '*Cheers*' in their correspondence. What the Word Cloud does not show is the use of emojis, like the correspondence below from 2021:

> *Hi guys, We are planning on sending out the results tonight (tomorrow worst case). Just waiting on one more member* 😟*.*

These emojis are seen to ease potential tensions among and between student groups.

Student Feedback

Student feedback was surprisingly positive, especially concerning the learning community and subject relevance, as shown in Figures 8 and 9. The student comments portrayed on these graphs are from the open comment questions given earlier. They are selected to appear in the theme most applicable, such as learning community or relevance. The presentation of results to these questions (given earlier in methodology) unfortunately changes between 2021 and 2022. The 2021 figure shows the percentage of students agreeing with the question in this subject to any extent relative to the school and faculty, being 100 per cent and thus higher than the normal. The 2022 figure shows the breakdown of students strongly agreeing, agreeing, disagreeing, and strongly disagreeing. In 2022 one student became disaffected early

and terminated the subject after the survey. Notwithstanding, the 2022 results are robust for relevance and learning community.

"One of the best courses that I have done.

"The course is very interactive."

"The course is a unexpectedly, pleasant educational exercise, even though there is a high volume of assignments. Highly recommended for those looking to learn in their Master's course.

"The inquiry-based learning pedagogy works best when there is an opportunity and time for discovery, where the answer is the journey and not when there is a definitive answer …

One student described the experience as being told to go on a journey with no map, then being criticised for visiting the wrong places. Very apt I thought. …

It may help telling students that you are not telling them the answer or giving direction on purpose and that finding the right destination is part of the learning. If you did it was not clear …"

"Moving from groups to class, this was a very interesting dynamic that I have not seen undertaken at Uni before. It reflects what happens in industry and very valuable, I think. "

Figure 8: Student *myExperience* data related to Learning Community.

"Opportunity to expose to real life scenarios and how these test been handled."

Very interesting topics, and can be used in multiple disciplines."

"The content is very practical."

The concepts covered were interesting and directly applicable to industry."

"Having a task that puts the lessons learnt into practice, rather than everything being paper-based. The robot really made the group think more about how DOE actually applies to a real-life example.

Additionally, the scaffolding of the assignments meant that we could really see the progress of the model as we went through the various stages."

Figure 9: Student *myExperience* data related to Subject Relevance.

Student comments on encouragement and mentoring feedback were less favourable, comparable to the school norms or below in 2021 (Figure 10). The teacher devoted more time to mentoring feedback in 2022 but still had fair criticism. Students invested more time in the subject due to the engagement and inquiry-based approach and so appeared to expect comparable effort in feedback. Also, students found the lack of a 'perfect answer' frustrating, especially for solutions with mathematical aspects where they usually appear to expect a greater degree of absolutism. This change is partly due to one of the subject's objectives to account for the variance and noise in a real system. Finally, students quickly discerned that the teacher was allowing a diversity of approaches between groups to evolve without direct

correction, again to help learn important lessons, which they later appreciated but did request a more honest declaration concerning inquiry-based learning upfront. A tutor has been sourced for 2023 to assist, in part, in the hope of capitalising on improving student numbers expected from greater availability online.

"Thus far in the 8 units I have been engaged in, the few live sessions I have been provided by lecturers have primarily been word for word reading off powerpoints …. Dr Joiner engaged the course regularly and provided in-depth lectures and tutorials which greatly assisted in understanding the course content and bettering my abilities ….

It is a little frustrating at times, when it is not explicit that the students are expected to learn by inquiry - it could be made a little more explicit.

There is an extremely large amount of group work for a remote (online) course.

Significantly more time was required for this course than for other courses I have taken."

Figure 10: Other Student *myExperience* data not grouped.

Teacher Observations

Several direct observations are made by the teacher regarding the move online of this subject where these aspects have not already been made through student feedback. Some observations about what theories may have influenced the shift online will be made in the discussion section later, as these are propositional.

The first significant observation is that students' families play a part in the online acceptance, engagement and practice of this subject because it occurs in the family home. For some students, it is simply a partner or work colleague, but for many, it involves children of various ages. The baseline course already had an individual exploratory assignment done primarily at home or work, where the family often played a part in the choice of the capstone system. However, the fully online subject meant that the use of the robot to elicit play now occurs in the family home, along with the seminal understanding of cornerstone concepts being played out to the family members and peer students in groups. Explaining a new concept to student peers for the first time can be difficult, but explaining it to cherished novices early on can have a reinforcing effect on students. This value comes in student group presentations, especially those who cannot congregate for testing, as the coopted assistants are varied and valued. An example of a student's son helping test in the family home is in Figure 11.

Figure 11: Testing at home with family assisting (student supplied).

The second observation is that mentoring can be harder online, requiring active checking often. This checking seemed natural in the face-to-face class as you would look around the room at groups and see progress or hear difficulties through raised voices or group members doing disparate things. The teacher had to make a habit of reaching out just before weekends or at the tutorial held late each week to make sure the weekend test activities were appropriate and not going to set students back. A second check on a Saturday evening was necessary to pick up queries midway through likely test periods. This check sounds daunting for busy teachers, but given the assessment plan (Table 2), it is three to five critical weekends in a 12-week semester. Given the earlier pedagogy about allowing different paths, this balance between hands-on and hands-off can be hard to find. An example of poor student-teacher correspondence is the one below from 2021, where students wasted an entire weekend on a poor MSA design and were advising the teacher of the second weekend of testing.

> *Keith,*
> *We haven't done the screening yet. The initial runs that were part of the MSA didn't … The Screening design that XXX provided has not been completed, and after our review, we have redesigned the screening design in what we think is a more appropriate design. … The intent is to complete the screening testing this weekend … Happy to discuss further over the phone also. Thanks in advance.*

A better example of student-teacher correspondence is the one below, checking a test design before implementing it.

> *Hi Keith,*
> *Our group have finally settled on an L-18 7-factor screening design. If you could have a quick glance over it and confirm we are on the right path before we get too far down the rabbit hole, that would be great. We still aren't sure how … but hopefully, we will figure that out as we complete more of the course! Thanks* 🙂

A third observation is the conduct of the student group presentations. In 2021 students did both student group presentations and put that into a portfolio report; however, it was overkill. The PowerPoint group presentations were more than enough in 2022 to assess the group components, and there is already individual reflective reporting to satisfy that skill. Also, in 2022 the teacher deliberately encouraged other student groups to question rather than being the only questioner. This pedagogy often required a Socratic exchange to initiate questions, usually by prompting a group that presented earlier as to whether the subsequent group's differences had been sufficiently explained. Once students had performed one individual reflection on their group's results, they often welcomed the chance to question other groups. The individual reflections must be due about three days after the student group presentations to realise this value, so the differences are fresh in the students' minds.

Discussion

The curriculum and pedagogy for the Advanced Test and Evaluation Techniques draw from many educational theories outlined in the literature earlier, summarised in Table 1.

Theory	Explanation	Reference
Guided discovery learning	1. Establish the touchstone system (robot) as a credibly representative complex system to test. 2. Establish trusted cooperative relationships early through self-forming teams, shared robot familiarisation & an achievable exercise that they brief. Activity finds initial thinking only partially solves & leads to alternative solutions (volitional). 3. Iterate the proximal development of team-based robot exploration to build concepts of screening, modelling & the capstone whole-course validation.	(Glassman et al., 2022)
Collaborative learning	Group work & online presentations are assessed, but the focus is progress check (formative) with whole-course Q&A.	(Menekse & Chi, 2019)
Dialogic teaching	Teach as a co-inquirer & avoid a perfect solution. Allow inelegant solutions (i.e., tracks & 2-level test designs) for efficient testing	(Reznitskaya, 2012; Vygotsky, 1968)
Informal Peer-critiquing	Student groups naturally check work they must co-present but also foster critiquing between groups through whole-course Q&A	(K. F. Joiner et al., 2021a, 2021b)
Student engagement	Behavioural engagement. The robot is fun & yet complex, so it elicits play & desire to control (program) & challenge (tracks). Emotional engagement. The robot is present in the home, explained to friends & family. Commitment to a group as all present. Cognitive engagement/Reappraisal. Task requires estimations & hypotheses where test results, when presented to the whole course by all groups, require reappraisal & reinforcement.	(Fredricks et al., 2004) (Zhoc et al., 2022) (Davis & Levine, 2013)

Problem-based learning	Characterising robot performance is ill-structured, with uncertainty in purpose & many pathways across a semester. Teams undertake independent research & relate to the problem with the group & their individual reflections throughout—increasing self-direction.	(Barrows & Tamblyn, 1980; Gallagher, 2015)
Authentic	Credibly representative complex system to test & one project spanning class length.	(Rees Lewis et al., 2019)

Table 1: Alignment of Pedagogy with Theory and Research.

It may seem to many teachers that there are too many different pedagogies in one subject, and some focus may be better. Indeed, students occasionally find the multitude of approaches disconcerting, and some argue for less pedagogical diversity. Inevitably students have their favourite ways of learning, which they usually want teachers to concentrate on. However, Sanger (2020) noted that "*evidence suggests most students do not have a single 'learning style' and in fact learn best when exposed to a range of modalities and representations.*" Diversity of pedagogy is therefore inclusive of different learning styles in the Universal Design for Learning (UDL) tradition (Behling & Tobin, 2018; Sanger, 2020). Furthermore, for university programs, these diverse learning skills are often expectations of professional practice (i.e., presentation, report, Q&A).

The key is for students to communicate. Hence to contribute to other teachers and researchers emulating the success of this subject and its move online; the following suggested communication strategy is recommended:

- Forming groups on the forum got them communicating.
- Progressive challenges kept them communicating.
- Family communication reinforced learning value.
- Student presentation back to whole-course as groups got them consultative and constructively competitive.
- The final challenge exercise got group-to-group communication.

Another more evolved way to express the pedagogical strategy is through what can be referred to as Vygotskian learning interactions that propagate or grow, as summarised in Figure 12.
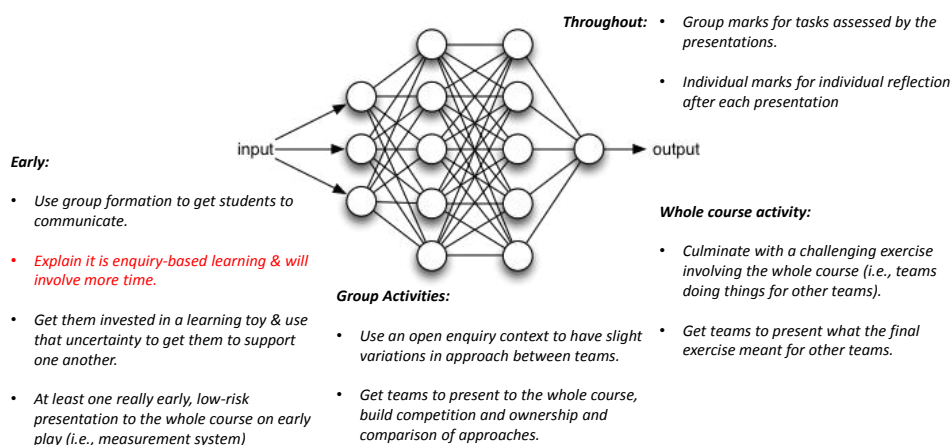
Figure 12: Generic principles proposed for propagating Vygotskian learning interactions.[1]

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[1] The guidance in red was not implemented but was included for the future based on student feedback.

Conclusion

Due to COVID restrictions, a postgraduate subject with significant problem-based and guided discovery learning was successfully transitioned from face-to-face to online. Student feedback and teacher observations found that the online mode maintained a positive learning community, subject relevance, and good other ratings. A communication strategy was developed and is provided for other teachers to help maintain student collaboration and informal critiquing when teaching with an ill-structured problem online. A key to the strategy is successive group presentations made achievable by starting with a relatively simple early task with time to absorb the context and team dynamics. A whole-course capstone activity with critical cognitive reappraisal and interaction between student groups also successfully transitioned. A disadvantage of the online problem-solving approach is that it is time-consuming for students in ways that appear more noticeable to students than face-to-face. Teachers must also check strategies for problem-solving with student groups before implementing these, as there are not the incidental cues of face-to-face learning.

A curriculum and pedagogical approach to emulate online success is presented based on propagating Vygotskian interactions. This approach warrants structured research, as this single subject is small, personal to one teacher, and limited to a single subject context and educational level.

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A 3D Printed Chinese Character Learning Art Educational Tool for the Blind and Visually Impaired

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Abstract

As one of the world's five most widely spoken languages, Chinese is also the most widely spoken language globally. The Chinese language consists of a writing system and a pronunciation system, with Chinese characters being the most critical language component. As Braille is a two-dimensional static image, it is difficult for the visually impaired, especially the non-sensitive blind, to learn by touch, presenting an unimaginable barrier in the teaching curriculum and posing a challenge to the Chinese language curriculum taught by teachers. In order to improve this dilemma, designing an educational tool suitable for visually impaired people to learn Chinese characters can solve the difficulties in the actual teaching of Chinese in special education schools in China, improve the barriers to learning Chinese for visually impaired people, and assist in moving the teaching curriculum towards a relaxed, happy and welcoming environment. The production of a Chinese character interface combined with 3D printing technology enables a literacy interface that is simple to design, quick to shape, durable, has a wide choice of printing materials and is more inclusive. 3D printing technology makes it easier to move from two-dimensional static images to three-dimensional images, making it easier to learn to read Chinese characters and experience the joy of touching Chinese characters for reading. This study hopes to popularise art education for the visually impaired in China, it provides a replicable design education research model for the education of people with disabilities in China and globally.

Keywords: Blind and Visually Impaired, Art Education, 3D Printing, Chinese

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1. Introduction

As one of the world's five most widely spoken languages, Chinese is also the most widely spoken language globally. The Chinese language consists of a writing system and a pronunciation system, with Chinese characters being the most critical language component. The structure of Chinese characters is more complex and contains profound philosophical ideas. Their origins are in pictorial drawings used to remember events, so Chinese characters mainly express the movements of script forms and the truths and allusions contained in the characters. Chinese Braille was first developed from the phonetic formulation of the Kangxi Dictionary, which is quite different from the internationally used Braille, so learning Chinese characters is the foundation of Braille learning. As Braille is a two-dimensional static image, it is difficult for the visually impaired, especially the non-sensitive blind, to learn by touch, presenting an unimaginable barrier in the teaching curriculum and posing a challenge to the Chinese language curriculum taught by teachers. In order to improve this dilemma, designing an educational tool suitable for visually impaired people to learn Chinese characters can solve the difficulties in the actual teaching of Chinese in Chinese special education schools in China, improve the barriers to learning Chinese for visually impaired people, and assist in moving the teaching curriculum towards a relaxed, happy and welcoming environment. The production of a Chinese character interface combined with 3D printing technology enables a literacy interface that is simple to design, quick to shape, durable, has a wide choice of printing materials and is more inclusive. 3D printing technology makes it easier to move from two-dimensional static images to three-dimensional images, making it easier to learn to read Chinese characters and experience the joy of touching Chinese characters for reading.

The research plan is to develop a three-stage Chinese character literacy interface tool for visually impaired people in three stages: point, line and surface. In the first stage, a Chinese character sequence using the ancient classical Chinese Confucian work *Surnames* as the interface composition will be used as a learning tool for visually impaired persons to learn their Chinese family names. The pictographs are accompanied by corresponding Braille explanations to aid the learning of bump characters while the visually impaired learn the pictographs. In the second stage, the Chinese tool dictionary *Ci Hai* is used as the blueprint for the interface composition, and words are used instead of characters to form word groups. In the third stage, It is mainly used in Taoist culture, and in the early days, it was borrowed for Taoist symbolic seal engraving, representing the epistemology of Taoist thought of the unity of heaven and man, the unity of matter and self, and the oneness of mind and matter, representing the combination of wisdom in ancient Chinese philosophical thought, and signifying good blessings in traditional Chinese folk culture. It is fun and educational. This study hopes to popularize art education for the visually impaired in China, enhance the learning of traditional Chinese culture and increase the cultural literacy of the disabled. It provides a replicable design research model for the education of people with disabilities in China and globally.

2. Difficulties faced by blind and visually impaired people in accessing arts education

2.1 Current status of education for blind and visually impaired people in China

Tactile is the most common cognitive modality used by blind and visually impaired to familiarize themselves with objects, understand information, and perceive their surroundings (Collins, J. J., Imhoff, T. T., & Grigg, P. 1996). Due to the absence of visual perception, the main channel for acquiring information is lost. At the same time, tactile and auditory senses

become the primary sensory organs for acquiring information, reading Braille requires touching and recognizing words with fingertips, walking requires feeling the texture of the blind path with the feet, and holding a guide stick to detect whether there is an obstacle ahead. The tactile muscle memory is the primary sensory organ for reading Braille and recognizing words, walking with the feet, and holding a cane to see an obstacle ahead. Through touch, blind people can recognize the form and material of objects and obtain richer information in terms of texture (Lu,L. 2020). However, there is some difficulty in recognizing the complete form of an object. In addition to perceiving objects and space through touch, blind people can also judge the size of space and the direction and speed of object movement through hearing (Roman, L. G. 2009). Hearing is an essential perceptual channel for blind people to absorb and learn information from the outside world. After processing auditory information to judge the surrounding environment and assist in complementing their other senses, the characteristics of sound, such as timbre, volume, and pitch, will also enhance the impressions of blind people.

2.2 Lack of art education tools for blind and visually impaired people

It is difficult for blind people to learn abstract vocabulary, and traditional teaching methods for blind people are based on linguistic scenario descriptions. However, since Chinese Braille is defined according to syllables, which is slightly different from the standard international Braille, there are challenges in learning Chinese characters. Therefore, designing a Braille language and writing cognitive products based on Chinese characters is necessary and feasible. The designed auxiliary writing cognitive product should be different from the previous learning tools with only Braille touch bumps (Zhang, X., Tian, J., Gao, T., Zhang, D., & Zhou, H. 2022). This product is essential for assisting blind people in learning Chinese characters and popularizing general education for the visually impaired to enhance their literacy level and feel the beauty of words (Figure 1).

Because Braille is a two-dimensional static image, it is difficult for people with visual disabilities, especially blind people without photoreceptors, to learn by touch. Unimaginable obstacles exist in the teaching curriculum and present challenges to the Chinese language courses taught by teachers. In order to improve this dilemma, designing an educational tool suitable for visually impaired people to learn Chinese characters can solve the difficulties in actual Chinese teaching in Chinese special education schools in China, improve the barriers to learning Chinese for visually impaired people, and assist in moving the teaching curriculum toward a relaxed, happy, and welcoming environment. The 3D printing technology will make it easier to learn Chinese characters from two-dimensional static images to three-dimensional images and to experience the joy of reading Chinese characters by touching them.
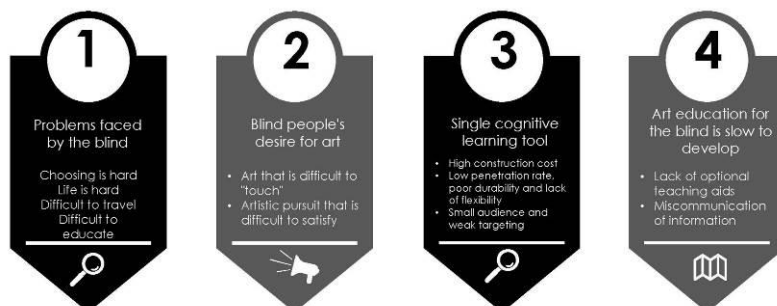
Figure 1: Difficulties faced by blind and visually impaired people in accessing arts education

3. Principles of art design adapted to blind and visually impaired people

The material, weight, temperature and shape, specification and texture of the objects touched, together with the voice-assisted explanation and environmental ambience, can assist the blind person to the maximum extent in gathering information and gaining an in-depth understanding of the art exhibits.

Choose exhibits at the forefront of art and safety. The blind and visually impaired lack the visual senses to judge the type of object, weight and distance. When selecting and designing exhibits, protecting the rights of special people to have unique cognitive modalities and reducing the harm of touching objects are also essential design principles. The use of safe and non-invasive soft materials as far as possible, the reduction of objects requiring complex cognitive judgement, and the translation of the frontiers of technology into designs that apply to the basic cognition of blind people allow them to experience the progressive development of the times together with them.

3.1 Artistic design that meets the cognitive characteristics of the blind

In outlining the design guidelines, it is essential to explain a little bit about what "art design that meets the cognitive characteristics of blind people" means. Only a minimal number of blind and visually impaired people in China have received systematic Braille study, and less than 940,000 people with visual disabilities have received a college education or higher, while the total number of people with visual disabilities in China is over 19 million. Among them, there are even more visually disabled people who were born blind. It is difficult for them to learn Braille systematically due to their age, family environment, and their reasons. Less than 0.04% of people in China can understand and recognize Braille.

At this stage, tools suitable for blind and visually impaired people to learn by touch should follow design principles. First, the design orientation needs to be based on the most sensitive sense of touch for blind and visually impaired people, plus the design characteristics of audio-visual perception as a supplement. It mainly involves cognitive tools that can assist them in art education and learning, spread the teaching of traditional Chinese culture, and is a form of general education to popularize art education. There is no restriction on whether one has a basic knowledge of Braille, and the design revolves around the shape of Chinese characters, graphic symbols, and Chinese Braille contrast. Secondly, the design should be simple and easy to understand. Based on the concept of universal accessibility design, it combined with the cognitive psychology of tactile cognitive characteristics, the "Design Progression" type of artistic processing, to generate to meet the cognitive needs of the blind and visually impaired people with different diseases. Finally, all designs are presented in three dimensions, which can also be transformed from two-dimensional to three-dimensional objects. The three-dimensional image is easier to perceive and learn by touch, and the cognitive memory of three-dimensional objects can be consolidated through repeated practice.

3.2 Promote the development of art education for the blind

The educational system for the blind should be simple. Students in special education schools need to acquire general knowledge to "survive in the world" and learn the skills to adapt to life as blind people. However, studies have shown that blind and visually impaired children at the age of 18 worldwide do not have the same level of skills as non-disabled children of the

same age. Those skill deficiencies, lack of teaching tools, and poor teaching methods have resulted in the vast majority of blind children having minimal access to jobs and employment in adulthood. The education they receive creates skill dysfunctions. Introducing art education for blind and visually impaired children is more effective. It frees them from the traditional limitations of "skill acquisition" and leads them to dynamic artistic thinking and creative ability. Blind and visually impaired people need to learn art because art is a spiritual vehicle for expressing emotions, soothing emotions, and expressing will and consciousness. Art is also said to be a human ecology and a continuation of life.

At this time, design is a clever way to intervene in the psychological subhealth of blind people with the help of Universal design, Barrier-free design, Inclusive design, and Design empathy. From the perspective of blind and visually impaired people, we will explore the value of design for people, give design humanity, emotion, and interaction, and design products, services, and systems that suit their needs in life. The lack of visual senses of the blind essentially limits the development of cognitive learning ability, and the tactile perception of objects has a particular bias, so the accurate expression of information transformed by the objects touched is crucial. Through the material, weight, temperature, shape, specification, and texture of the objects touched by the blind with voice-assisted explanation and environmental atmosphere creation, the blind can be assisted to the greatest extent in information collection and in-depth understanding of the art exhibits. At the same time, the development and design of tactile cognitive art products can serve as a tool to extend the functions of the human body and better reflect the new hope that the introduction of design brings to the expected life of the blind. It will serve as a practical form of assisting art education for the blind, reaching out to communities, blind associations, and clubs. It will enrich art education for the blind, enhance the cultural and artistic literacy of the blind, and enhance the creation of community and social friendship and mutual assistance.

3.3 Artistic output is easy to popularize and promote

Art products for the blind and visually impaired need to follow the design principles of "easy to obtain, easy to mass produce, and easy to popularize." Material selection should also follow the principles of "sustainable design" and "circular economy" in the design process to minimize manufacturing costs and reduce cost loss to achieve a higher penetration rate. This study has an inherent advantage in product design. The design of art cognitive products based on the sense of touch is suitable for blind and visually impaired people, using graphic symbols as design elements to build a new way of tactile cognition and reduce the "threshold" of cognitive learning. By recognizing simple graphics and symbols to achieve the purpose of cognitive learning, the new expression of tactile cognitive art can quickly enhance and broaden the cognitive scope of blind and visually impaired people in a "general knowledge, popular science, and common sense" way. By establishing a database of digital models of tactile cognitive art products, the research will collect design outputs and open models suitable for tactile cognitive products and aids and provide a database basis for implementing a design-sharing platform. To provide various options and references for selecting and updating art exhibits for the blind.

4. 3D printed Chinese character literacy art education tool for blind and visually impaired people

3D printing technology makes it easier to transfer Chinese characters from two-dimensional static images to three-dimensional images, making it more straightforward to learn to read

Chinese characters and to experience the joy of reading Chinese characters by touch (Figure 2).

Figure 2: Comparison of two-dimensional graphic and three-dimensional Chinese characters

4.1 *Hundred Family Surnames* Chinese character literacy interface

3D printing technology makes it easier to transfer Chinese characters from two-dimensional static images to three-dimensional images, making it more straightforward to learn to read Chinese characters and to experience the joy of reading Chinese characters by touch. The authors delve into providing a three-stage Chinese character literacy interface tool for the visually impaired with dot, line, and surface (Ji, R. & Sun, X. 2015). Drawing on the classic ancient Chinese Confucian writings, The *Hundred Family Surnames* is a learning tool for blind and visually impaired people to learn their Chinese surnames using the Chinese character order for the interface composition. It is the best reading material for the enlightenment of traditional Chinese culture and Confucianism, with a wide range of applications and covering many characters. The number of blind and visually impaired people who recognize the strokes of their surnames is almost zero. So adding this to art education, cognitive learning enhances motivation, increases curiosity improves mood, and boosts self-confidence.

In addition to learning Chinese characters, the corresponding Braille text using to assist in learning bump text. The interface size is standard A4 paper size 297mm×210mm, and the sample thickness is 1mm (Figure 3). Design 47 layouts using open-source fonts for typography, Chinese characters on the top, Braille on the bottom, Chinese characters on the left, and Braille on the right. So that blind and visually impaired people can learn Chinese characters and deepen their impressions of Braille simultaneously. The material used is PLA, a biodegradable and environmentally friendly material with low cost, which is suitable for special education schools and social welfare institutions to use on a large scale. PLA's unique additive linear printing texture is more suitable for touch learning and can physically increase tactile perception. The interface can be designed as a single unit according to the learning needs, achieving low cost and fast and precise tactile textures.
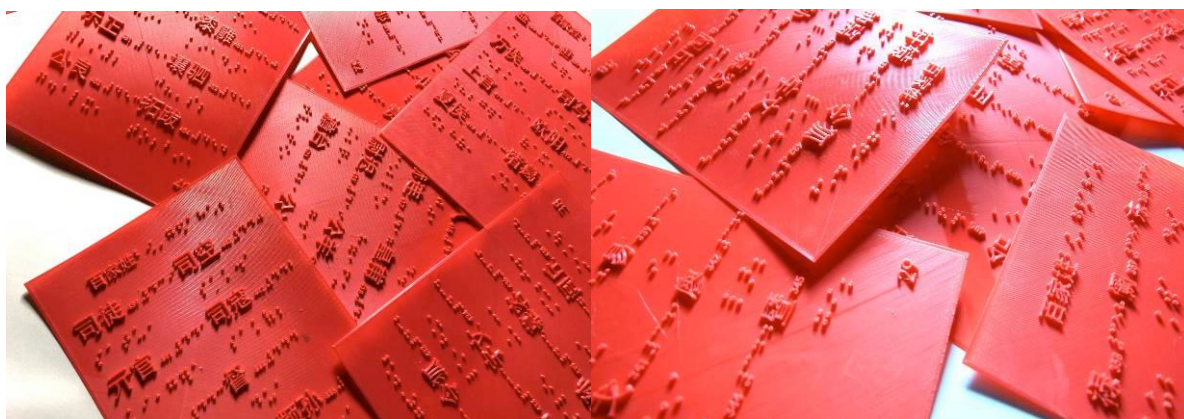
Figure 3: *Hundred Family Surnames* Chinese character literacy interface

4.2 Chinese character tactile cognitive name interface

Using the Chinese tool book Dictionary *CiHai* as the blueprint for the interface composition, words are substituted for characters to form a combination of words and phrases, and subjects' names are researched for artistic literacy interface design (Figure 4). The interface combines the landscape, geographic or hydrological features of the subjects' hometowns, which can serve to increase unique memory points and enhance the fun of learning Chinese characters, as well as briefly summarize the features of their hometowns and arouse their motivation and curiosity for learning. Recognizing people and names. Cognitive learning starts from names, and the tactile memory method can be better increased by touching cognitive learning of their names during the learning process and designing the Chinese character name literacy interface.
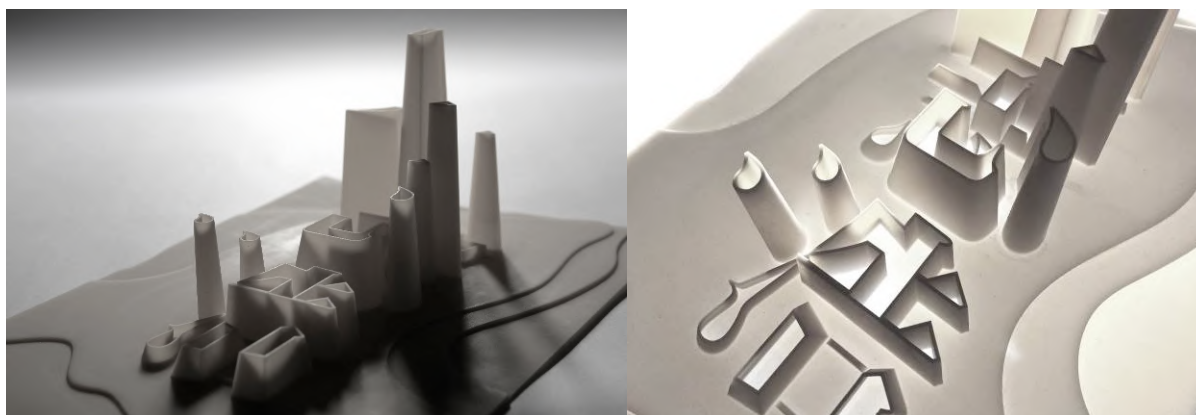
Figure 4: Chinese character tactile cognitive name interface *Li Zhihao*

4.3 Chinese combined character

Chinese characters have evolved throughout China's history, resulting in several symbolic and playful amalgamated characters. Also known as "auspicious characters," "auspicious words," and "auspicious combined characters," these combined characters are a combination or arrangement of several individual Chinese characters to form a graphic symbol with metaphorical characteristics. There are two types of characters, the upper and lower structure and the left and the right structure. Chinese characters contain national characteristics and unique character dismantling recognition. *Xu Shen* of the Eastern Han Dynasty elaborated on the six types of Chinese character creation in his *Origin of Chinese Characters*, narrative, pictorial, onomatopoeic, metaphorical, exegetical, and borrowing. The combined characters

are divided into graphic combined characters, symbolic combined characters, and metaphorical combined characters.

This literacy interface draws on the selected combined character redesign with sound blessing symbolism and adopts the realization method of 3D printing (Figure 5). The red color with traditional Chinese characteristics chosen, and the biodegradable PLA material with low cost, low manufacturing difficulty, and easy to be popularized among 3D printing materials (Figure 6).
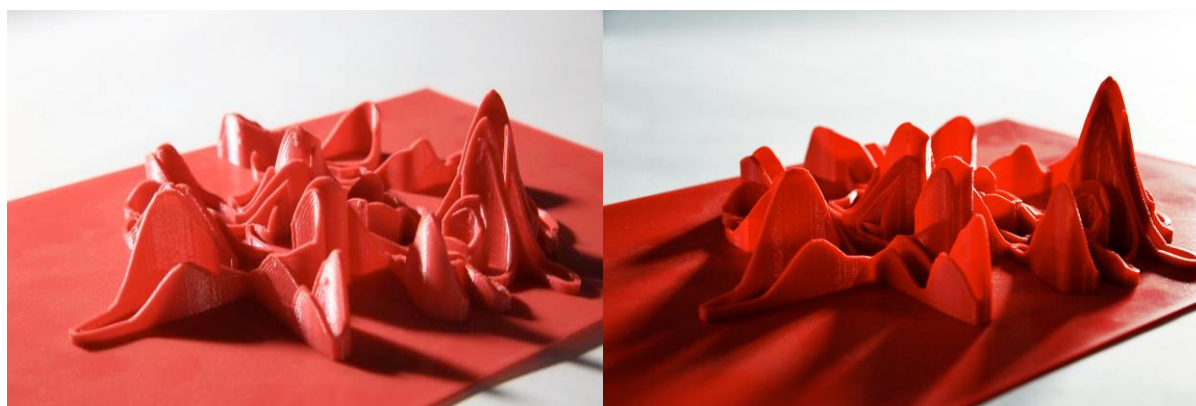
Figure 5: Chinese combined character name recognition interface '吉祥如意'
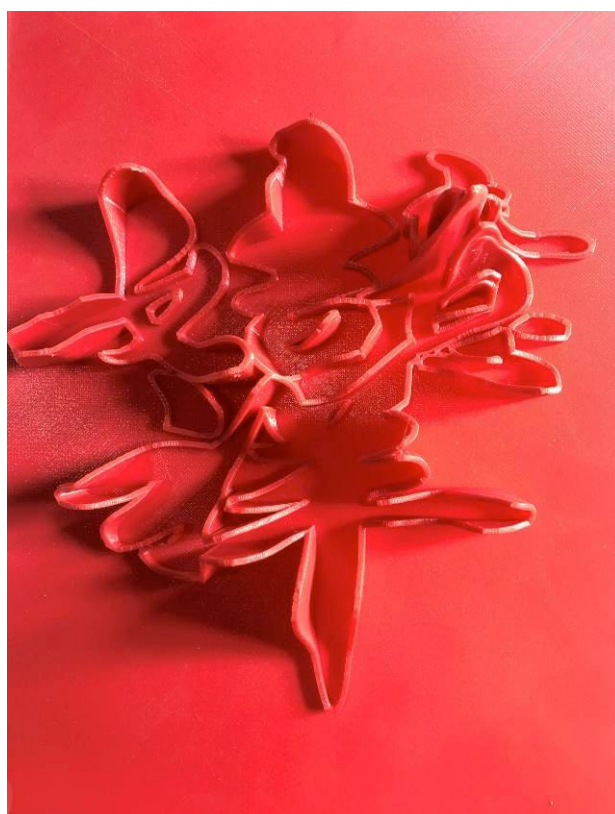
Figure 6: Chinese combined character name recognition interface '吉祥如意' front

The artistic and educational tool of the combined characters involves selecting more than 20 folk slang words with good blessings that Chinese residents often come into contact with in their daily lives. It also serves as a guide for spreading traditional Chinese culture,

popularizing national culture for blind and visually impaired people to improve national self-confidence, and guiding them to explore Chinese national culture more deeply.

4.4 Chinese poetry tactile cognitive interface

The Chinese character literacy interface for the blind already involves the cognitive learning of Chinese characters. We add the *Tang Poems* and *Song Lyrics* as the blueprint for the interface composition, selecting poems with high circulation and popularity, increasing literacy difficulty, enhancing the fun of reading tactile characters, and making it fun to teach (Figure 7). Studying *Tang Poems* and *Song Lyrics* not only enhances cultural cultivation and perpetuates and inherits traditional Chinese culture but also gives a deep sense of national identity and pride from thoughts. From the poems, we can feel the patriotic sentiment, the true meaning of life, the sense of life, the sun, moon, mountains and rivers, and the scenery of the country's north. From the poems, we can learn to enhance our sense of beauty and the exploration of finding beautiful things. The poems show the harmony between man and nature, the philosophical realm of spiritual resonance with the natural environment, and more. The poems will help us understand the true meaning of life. It can also help establish a positive outlook on life, values, and worldview and open the eyes to a balanced perception of universal things.

Figure 7: Chinese poetry cognition interface '*Tao Zhe*'

5. Conclusion

This research hoped to popularize art education for blind and visually impaired people in China, enhance the learning of traditional Chinese culture, enhance cultural literacy and improve the artistic aesthetics of people with disabilities, and provide a scalable design paradigm for the education of people with disabilities in China and globally. With Chinese character design as the starting point, the project explores new tactile cognitive art expression methods for the blind and forms art education tools through art design to reduce cognitive learning barriers and lower the threshold of cognitive learning. The resulting art products can be rapidly popularized through 3D printing to reduce production costs. The resulting digital model database can be shared to attract more "young aspiring" designers to join the project, drawing widespread attention from society and calling for equal treatment of people with visual disabilities.

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School Administration: Violence Among Elementary School Students in District Lahore

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Abstract
School violence has become a global issue that has harmed kids' well-being. Few studies have looked at how school features buffer the relationship between personal and family factors and school violence in Asian cultures' elementary schools. School violence has become a major social concern in recent decades, hurting students' personal, family, and social well-being. The majority of school violence research has thus far focused on data concerning adolescents. The demographic of elementary school children has received less attention. Furthermore, many studies on the risk factors for school violence have been undertaken in Western countries. The objectives of the study were to identify the nature and extent of violence among elementary school students, and factors promoting violence perceived by the teachers. The survey method is used to collect the data by questionnaire from all the elementary school teachers and head teachers of the Lahore district through cluster sampling. Data is analyzed by using the statistical software SPSS version 23 for windows. It is concluded from the results that verbal and physical violence exists among elementary school students perceived by teachers and head teachers. This research study provides valuable practical implications to the top management and policymakers for ensuring the quality behavior of students towards society and their learning.

Keywords: Student Violence, School Administration, Elementary School Students, Corporal Punishment

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Introduction

School violence has spread around the world and impacted children's well-being (Debarbieux, 2003). Limited research has examined how school characteristics in Asian cultures' elementary schools mediate the association between personal, and family factors and school violence(Robinson, Saltmarsh, & Davies, 2012). In recent decades, school violence has grown to be a significant social issue, harming students' social, familial, and personal well-being. The majority of research on school violence to date has been on adolescent data (Morrison, Furlong, & Morrison, 1994). Numerous researches on the causes of school violence has also been conducted in Western nations. Although there appear to be significant differences between East and West in sentiments, perspectives, and worldviews, there is a dearth of data from a representative national sample suggesting that these risks apply for elementary level in Asian cultures(Furlong, Morrison, Cornell, & Skiba, 2004).

According to international studies, teachers are also targets of student violence at school, but little is known about how kids' personal, familial, and school experiences influence student aggression toward teachers in schools (Steffgen & Ewen, 2007).

There are different types of violent behaviors which are considered the root causes of violence among elementary school students (Finkelhor, Turner, Hamby, & Ormrod, 2011).

Physical violence is the conscious use of coercive power to inflict hurt, injury, or impairment. It involves biting, shaking, slapping, pushing, shoving, throwing things, and using force against another student. Physical fighting, twisting ears, slapping, hair pulling, pinching, pushing, snatching belongings, biting with teeth, and face pinching are the kinds of reported physical violence among school students (Ferrara, Franceschini, Villani, & Corsello, 2019).

Psychological violence in schools is defined as any purposeful verbal conduct or type of activity that results in aggressiveness, abuse, threatening, making one feel foolish, psychologically disturbed, and negatively affecting one's performance and confidence. Psychological violence against schoolchildren has been cited as being caused by the stolen property, yelling, bullying, name-calling, teasing and being fooled (Ferrara et al., 2019).

Corporal Punishment

Corporal punishment is the intentional infliction of bodily harm as a means of behavior improvement. Examples of physical punishment include hitting, punching, spanking, beating, kicking, clutching, shaking, shoving, choking, using various objects including belts, sticks, pins, uncomfortable body postures, using rigorous exercise exercises, or preventing the elimination of urine or feces (Greydanus et al., 2003).

Literature Review

Schools are responsible for developing positive social behaviors among students such as creative skills, talent, critical thinking, life skills, social relations, confidence, and self-esteem. Schools should set such policy patterns that help maintain non-violent behavior and role in developing the skill to communicate, ability to negotiate, and support peaceful solutions to conflicts. Schools need to provide a safe environment because it is the place where students spend most of the time (three quarters) and learn social behavior and even developing their goals and ideals (Burton & Leoschut, 2013).

Some factors are promoting school violence rapidly like poor interaction and collaboration between school and parents, poor grading in exams, lack of attention in school, and low-income resources. Schools can improve their group work and teamwork by teaching the students to control anger, problem-solving habit, and conflict resolution with their group or team members (Cornell, 2014).

At the secondary level students feel like themselves as seniors and become more violent based on seniority. Students mostly do their home tasks at tuition and have a lot of pressure on competitions and achievements. This factor is also making them aggressive and violent. They want to achieve their goal in any way. So aggression becomes a part of their life. Many students dislike their school. They only study in a particular school due to family pressure or near the home location of the school. They are admitted to that school by parents or elders where they have to complete their schooling. Such students become aggressive on miner problems and behave violently (Jumprasert & Ket, 2008).

Violence is defined as the "intentional use of physical force or power, threatened or actual, against an individual, or group or community that either result in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation" (MISHRA, 2013).

According to (Clark, 2011) survey, 71% of physical violence victimizers believe that they were bullied or threatened by the victim person. So it is the revenge of the act. Violence as an act of revenge is not considered shameful by most of the students because they think that if someone is hitting you or irritating you that means it is fair to hit him back or irritate him back.

Context and individual characteristics of the background aggression support the violent behavior. The power and status of society and lack of guidance and relationships marked by jealousy and lack of sense of identity and mental disorders and unequal gender roles are significant factors of violence (Mateos, Amoros, Pastor, & Cojocaru, 2013).

Personal beliefs play an important role in student violence. Physical fights and abuse or taunt are considered appropriate responses or even preferred strategies in interacting with personal clashes. Some students commit violence in fashion. They want to gain attention and show their presence. Such kind of students has double personalities, they are very shy and less talkative at home but in schools, they are different persons (Jumprasert & KetUm, 2008).

Some students who commit violence have a family background that promotes and leads toward aggression and violent behavior. They are mostly ignored or unwanted children in the family. These students have a disturbing environment at home and they release their frustration in the schools with their school or classmates. Such students taunt their friends and feel happy to disturb other classmates or schoolmates (Burton & Leoschut, 2013).

In the eastern culture, it is expected the family deal with childhood problems. Our social setup and norms have made it very difficult these days for parents to fulfill all the needs of their children. Ideal parents always reinforce positive behavior but when parents fail to do this duty, children may develop negative behavior and become violent in school. Their self-esteem is badly damaged due to an unbalanced home environment (Tugli et al., 2014).

Friendship is a social bond between children and they like to stay with social groups where they feel relaxed and easily converse without hesitation. From peer groups, children learn behavioral norms where a child regularly associates with other children and feel confident in group membership. Children learn through relationships through observation and practice. Peer relationships promote social skills among students and teenage students want to stay in groups and peers play a different role than the family in the development of school culture (Gauvani, 2001).

Due to a lack of parental support, interest, education, and poverty, such schools have a lot of conflicting demands on teachers, parents, and society. Here the head of school can make a difference in the life of each child, every day, by giving them knowledge, improving their habits, and keeping watch on what happens in the classroom (Peterkin, Jewell-Sherman, Kelley, & Boozer, 2011).

Schools are making effective efforts to reduce violence in school through proper training and conflict resolution training and controlling aggression among students. School management is also trying to root out violence by improving the school and classroom climate and introducing zero-tolerance discipline strategies in the school. This effort is expected to help in making schools a peaceful and secure place to learn and adopt the best behaviors (Clark, 2011).

In the school environment dress and physical appearance of the student is also important. For this purpose, schools have developed uniform policies. Uniform minimizes individual differences and brings discipline among students (Powell & Powell, 2015).

Schools should adopt such policies in which parents, teachers, and students can easily participate to control school violence (Mills, 2001). Self-control improvement, mental health, seating, and awareness of child's rights, social skill training, role-playing, real-life situations, and practice work can be used to reduce violence (Ramos-Jimenez, Wall-Medrano, Villar, & Hernández-Torres, 2013).

School staff employees' lack of training, as well as the school principals' lack of collaboration and behavior, are to blame for school violence. Only if individuals involve, coordinate, and communicate actual understandings with others will a school's punishment system achieve the requirements of justice and uniformity(Morrison, Peterson, O'farrell, & Redding, 2004).

(Burton & Leoschut, 2013) propose that to develop prevention for the management of school violence, schools should involve members of the local community and local government. The classroom's physical environment can reveal vital details about the types of transactions that are most likely to occur. The physical environment is a location that can influence a variety of actions. Physical settings have been found to contribute to students' and teacher performance, the arrangement of the space, the cleanliness of the room and whole area of the school, and the ability of the classroom to accommodate student's needs, such as space to accommodate students mobility and storage of personal belongings. School administrators and teachers should design classroom arrangements in a manner to facilitate students' cooperative learning (Osher et al., 2004).

School violence affects not only the violent victim but also those who witness the violence in schools. This creates an atmosphere of fear for learners and disrupts the academic attitude and the possibilities of learning. Every fifth student report that they feel fear of physical

fighting near parking areas or school gate and every tenth student report that they have seen or victimization by physical violence at school playgrounds and near toilets (Burton & Leoschut, 2013).

Bullying is the most common and rapidly occurring violence in the area of behavior in the school violence study. It involves high aggression and rudeness. This type of violence can be minimized through proper checks and balances and by making effective peer members and through their involvement in social base activities in schools (Clark, 2011).

To control violence schools should treat students with tolerance and discipline. Teachers should strictly train them to behave properly in class and movements during the classes and motivate them to learn and apply the rules in the classroom and the other areas of the school.

Schools should decide on behavior they want from students together and individually, mark it on the chart, and paste it on a visible place where all students have access to see and read. Break and free time may be used to promote the ethics focus on the student's current behavior but accepting the excuses and giving chance to prove the student. Teachers need to remember that many of these students may not understand even basic classroom and school rules and procedures. So, it is the duty of the teacher first of all to convey the rules of school and class, even where they should stand in line for assembly or where they should queue up for moving to another room when a bell rings or participate in games (Brookhart, 2004).

Many students come to school alone, frightened, and frustrated. The school environment should be so caring for the student that they feel ownership and security in the school. Students have different home environments and cultures. Many students do not have proper guidelines in studies from parents or have low income and cannot fulfill even basic needs of life, here school should provide them extra guidelines and some financial support to complete their educational process (Crothers, Hughes, Kolbert, & Schmitt, 2020).

Media can play a vital role in improving children's interpersonal behavior such as cooperation, helping each other, understanding others feeling, the habit of calmly solving problems, and following the rules (Hopkins, Geangu, & Linkenauger, 2017).

School violence is the terrible and unfortunate reality of the day. Schools should conduct open discussions about all violent actions and events that occurred in school. Students can play an effective role by avoiding physical fights, reporting all violent behaviors to the teacher, managing their anger, welcoming new students, and helping others. Parents can also stop or overcome violence through some simple steps like taking an active part in a child's school activities, regularly attending Parent-Teacher Meetings, giving quality time to the children, and guiding their child on how to solve the problems (Volungis & Goodman, 2017).

There are two main effects of school violence, firstly damaging the mental health of the student and secondly, it is creating feelings of insecurity. The teacher should share good behavior practice with students and should exchange ideas with students in the classroom, functions, and other activities (Gittins, 2006).

Violence affects the learning potential of millions of children around the world. Schools are social Centres so school violence should be discussed with students and local school resources should be utilized to overcome this problem. Students should be involved in these programs. These measures will empower young students to become leaders in different tasks

in school violence prevention. When making school violence strategies the areas of the school compound where more violence occurs should be identified and more monitoring be provided there. Posters or cards related to peace education, teamwork, and cooperative behavior should be displayed in visible places in school (Bundy, 2011).

School violence is also a serious issue for Pakistani schools like other countries and it is a major threat to the prosperity of the country. School violence is not only affecting the teaching-learning process but also a great barrier to the attainment of internationally agreed education goals for girls. It takes many forms including hair pulling, ear twisting, physical fights, shouting, teasing, and threatening. On the other hand poverty, political issues, terrorism and the long journey to school put girls at additional risk (Cavanaugh, 2009).

Methodology

The study was quantitative, and it was decided that a survey method would be the best way to carry it out. The population of the study consisted of all elementary school teachers in the district of Lahore. The representative sample for the study was chosen using a cluster random sampling technique. Based on all of the government-run primary schools in the Lahore district, the population was sorted into strata (gender and location) and then into clusters (each school was treated as a cluster). A questionnaire was created as a research tool to gather data from the target demographic and determine how elementary school instructors felt about violence among their children. The researcher himself created a questionnaire that was sent to primary school teachers and district Lahore head teachers. Data were analyzed using SPSS version 23 for Windows, a statistical program. To examine the data gathered by distributing a questionnaire to primary school teachers, the respondents' replies were tallied, and relevant statistical procedures were utilized, such as frequencies, percentages, mean scores, standard deviation, and t-tests.

Analysis and Interpretation of Data

SPSS software was used to examine the data. In this chapter, the statistics Mean (M), Standard Deviation (SD), Frequencies, item Evaluation, Percentage, and Independent Sample T-Test were used to analyze the data.

Demographical Information of Respondents

Table 1: Reliability of the scale

Cronbach's Alpha	N of Items
.961	26

Table 1 shows that Scale has high internal consistency, with Cronbach's alpha coefficient being .96.

Table 2: Distribution of respondents by gender

Gender	N	Percent
Male	87	32.8
Female	178	67.2
Total	265	100.0

Table 2 shows that there were respondents, males (N=87, 32.8%) and females (N=178, 67.2%), while the total No of respondents by gender was 265.

Table 3: Distribution of respondents by locale

Locale	N	Percent
Rural	52	19.6
Urban	213	80.4
Total	265	100.0

Table 3 shows that there were respondents, rural (N=52, 19.6%) and urban (N=213, 80.4%), while the total No of respondents by location was 265.

Table 4: Distribution of respondents by Academic qualification

Academic Qualification	N	Percent
B.A/B.SC.	139	52.5
M.A/M.Sc.	108	40.8
M.Phil.	14	5.3
Any other	4	1.5
Total	265	100.0

Table 4 shows that there are respondents by academic qualification were, B.A/B.Sc. (N=139, 52.5%), M.A/M.Sc. (N=108, 40.8), M.Phil. (N=14, 5.3) and Any other (4, 1.5%), while the total No of respondents was 265.

Table 5: Distribution of respondents by Professional qualification

Professional Qualification	N	Percent
B.Ed.	197	74.3
M.Ed.	68	25.7
Total	265	100.0

Table 5 shows that there are respondents by professional qualification were, B.Ed. (N=197, 74.3%) and M.Ed. (N=68, 25.7), while the total No of respondents was 265.

Table 6: Distribution of respondents by experience as a teacher

Teaching Experience	N	Percent
Less than 1 Year	23	8.7
2 to 3 Year	26	9.8
4 to 6 Year	36	13.6
7 to 10 Year	17	6.4
More than 10 Year	163	61.5
Total	265	100

Table 6 shows that there are respondents by teaching experience is Less than 1 year (N=23, 8.7%), 2 to 3 Years (N=26, 9.8%), 4 to 6 Years (N=36, 13.6%), 7 to 10 Years (N=17, 6.4%), More than 10 Year (N=163, 61.5%), while the total No of respondents was 265.

Table 7:Distribution of respondents by Job Status

Job Status	N	Percent
Contract	41	15.5
Permanent	224	84.5
Total	265	100.0

Table 7 shows that there were respondents having job status, contract (N=41, 15.5%), and permanent (N=224, 84.5%), while the total No of respondents by location was 265.

Table 8: Distribution of respondents by Job Scale

Job Scale	N	Percent
BS (9-12)	95	35.8
BS (13-16)	170	64.2
Total	265	100.0

Table 8 shows that there were respondents having job scale, BS (9-12) (N=95, 35.8%) and BS (13-16) (N=170, 64.2%), while the total No of respondents by location was 265.

Table 9: Questionnaire Items, the value of M, SD, data collected in percentage
for strongly disagree, disagree, uncertain, agree, and disagree

Items	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree	M	SD
Fight among students increased	5.7	8.3	1.5	35.1	49.4	4.1434	1.15560
Students are twisting ears of each other	9.4	15.5	10.2	38.5	26.4	3.5698	1.28652
Students are slapping each other	3.8	10.9	10.2	35.8	39.2	3.9585	1.12906
Students are pulling the hair of each other	7.9	13.6	9.4	38.1	30.9	3.7057	1.25686
Students are pinching each other	6.8	11.7	12.1	33.6	35.8	3.8000	1.23460
Students are pushing back each other	3.0	8.7	6.0	27.5	54.7	4.2226	1.08688
Students are snatching belongings of each other	5.3	12.1	7.9	34.7	40.0	3.9208	1.19878
Students are biting each other with their teeth	22.3	21.3	14.6	24.9	17	2.9208	1.42931
Students are pinching the faces of each other	20.0	21.1	11.3	28.3	19.2	3.0566	1.43832
Students are punching each other	13.2	15.8	9.8	29.8	31.3	3.5019	1.41187
Students are twisting their arms over each other	12.8	17.4	11.3	30.9	27.5	3.4302	1.38575
Students are abusing each other	9.1	15.1	7.5	27.2	41.1	3..7623	1.36240
Students are shouting at one another	3.4	12.5	12.1	31.3	40.8	3.9358	1.15455
Students are stealing belongings of one another	5.3	15.5	10.9	30.6	37.7	3.8000	1.24377
Students are calling bad names one another	5.7	9.8	11.3	31.7	41.5	3.9358	1.19644
Students are threatening one another	6.0	11.7	13.2	31.7	37.4	3.8264	1.22167

Students are making fools of each other	9.1	11.3	15.5	34.0	30.2	3.6491	1.26785
Students are snatching lunch boxes from one another	12.1	17.7	12.5	32.5	25.3	3.4113	1.35424
Students are tearing off the books of one another	9.1	12.5	13.2	28.7	36.6	3.7132	1.31743
Students are ready to fight with each other	7.9	14.0	11.3	28.3	38.5	3.7547	1.31001
Students are throwing belongings at each other	6.8	10.6	9.1	38.5	35.1	3.8453	1.20708
Students are moving one another forcefully	6.8	9.4	8.3	37.7	37.7	3.9019	1.20203
Students are hurting each other physically	10.6	15.1	10.6	33.2	30.6	3.5811	1.34066
Students are teasing each other	9.8	15.5	9.4	34.7	30.6	3.6075	1.32457
Students are hurting each other with sticks	5.7	11.3	13.2	35.8	34.0	3.8113	1.18476
Students are burning each other	7.2	10.2	14.7	33.2	34.7	3.7811	1.22676

Table 10: Distribution of respondents by gender-wise (male, female)

Gender of respondent	N	Mean	S.D	t	df	Sig.(2-tailed)
Male	87	93.5057	22.14691	-1.475	263	.141
Female	178	98.0337	24.08434			

Table 10 shows that an independent-sample t-test was conducted to compare the perception of teachers (male, and female) regarding violence among elementary school students. There was not a statistically significant difference in scores for males (N=87, M = 93.5057, *SD* = 22.14691) and females (N=178, M = 98.0337, SD = 24.08434) t (263) = -1.475, p= .141 (two-tailed).

Table 11: Distribution of respondents by locale wise (rural and urban)

Location of Respondent	N	Mean	S.D	t	df	Sig.(2-tailed)
Rural	52	98.7885	22.54959	.766	263	.444
Urban	213	96.0000	23.77092			

Table 11 shows that an independent-sample t-test was conducted to compare the perception of teachers (rural, and urban) regarding violence among elementary school students. There was no statistically significant difference in scores for rural (N=52, M = 98.7885, *SD* = 22.54959) and urban (N=213, M= 96.0000, SD = 23.77092) t (263) = .766, p= .444 (two-tailed).

Summary of the Procedure

This part of the research consists of findings, conclusions drawn from results, and recommendations based on results for betterment in the lacking area of this research study.

Findings

The major findings of the study were:
1. It is found that Scale has high internal consistency.
2. It is found that there were the majority of female respondents. The majority of respondents were from urban areas. A very huge number of respondents were having academic qualifications of M. A, while the professional qualification-wise majority of respondents were B.Ed. Experience of teaching the wise majority of respondents have 10 years of experience. A very large number of respondents have permanent job status.
3. It is found that the majority of respondents strongly agreed with the statement that "Fight among students increased" "Students are twisting ear of each other" "Students are slapping each other" "Students are pulling hairs of each other" "Students are pinching each other" "Students are pushing back each other" "Students are snatching belongings of each other" "Students are biting each other with teeth" "Students are pinching face of each other" "Students are punching each other" "Students are twisting arms of each other" "Students are abusing each other" "Students are shouting at one another" "Students are stealing belongings of one another" "Students are calling bad names of one another" "students are threatening one another" "students are making fools each other" "Students are snatching lunch boxes from one another" "Students are tearing off the books of one another" "Students are ready to fight with each other" "students are throwing the belongings of each other" "Students are moving one another forcefully" "Students are hurting each other physically" "Students are teasing each other" "Students are hurting each other with sticks" "Students are burning each other".
4. It is found that an independent-samples t-test was conducted to compare the perception of teachers (male, and female) regarding violence among elementary school students. There was no statistically significant difference in scores for males and females.
5. It is found that an independent-samples t-test was conducted to compare the perception of teachers (rural, and urban) regarding violence among elementary school students. There was no statistically significant difference in scores for rural and urban.

Conclusions

The overall conclusion of the study:
It is concluded from the above results that verbal and physical violence exists among elementary school students. Physical and verbal violence among students is also perceived by teachers. The opinion of elementary school teachers is that it is due to the corporal punishment law. It is explored that there may be other causes of violence but the major cause is corporal punishment law.

Implementations and Limitations

In light of the above findings and conclusions, the following recommendations are made:
Physical punishment should be banned as it may cause physical disorders in students. The teacher should try to use alternative methods to maintain control of students rather than physical punishment. School-based violence prevention and intervention training programs should be conducted for teachers in schools. The teacher should try to identify the factors/causes of violent students and counsel students that how to cope with this negative behavior and report parents or use any other preventive measures in case of other factors like home environment, depression, anxiety, effects of media, and single parent-child. It is recommended to the future researcher conduct a qualitative study to explore the causes of

violence at the elementary level. The study can be carried out in other Pakistani districts and in other Asian regions. It could have a qualitative character. For quantitative data, you might use alternative data collection techniques.

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Online Classes: Does Increased Familiarity With the Mode of Teaching Actually Lead to Improved Learner Performance?

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Abstract
Although the COVID-19 pandemic has led to a tremendous expansion in the provision of online education, especially at the tertiary level, it was a sector that was already growing pre-2019. Research from both before and after the outbreak of the coronavirus has tended to compare student satisfaction levels or results in terms of performance for face-to-face and online modes of teaching/learning. However, the focus of the present study was rather to examine the effect of increasing familiarity with online learning on student performance. It was hypothesized that there was likely to be a negative impact in the early days that would decrease after a year or so of experience with classes and tests in the new mode. This research is a small-scale case study at one university (Musashino University), with two groups of similar ability students including both male and female students and a similar proportion of international and Japanese students in each group. Their English reading comprehension was assessed at the beginning and end of a one-semester EFL Reading class using the online standard Placement Test provided by the Extensive Reading Foundation (originally acknowledged as suitable for such use (Brierley, 2019) to determine improvement over the semester. The data for the two groups (April-July 2020 and September 2021-February 2022) were analyzed using SPSS software. The results showed that there was noticeable improvement in average performance after a longer time online, but the difference was not statistically significant, nor affected by gender or nationality. The contribution of the findings is discussed.

Keywords: Online Teaching/Learning, Exposure, Performance, Improvement

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Introduction

As a result of the global coronavirus pandemic, universities in Japan and elsewhere have now spent more than two years mostly teaching and learning online, and in some cases are still doing so, even if it is no longer the only mode of instruction and learning for most of us. It was a situation that was entirely unfamiliar to the majority of instructors and students in April 2020, when we were suddenly thrown in at the deep end and forced to learn to swim in the new environment as quickly as possible. As Maheswari (2021) points out, "neither the teachers nor the students were trained to teach and study online as everything was sudden due to the pandemic". Yaseen et al. (2021) also mention clearly that "digital competence is a required skill when classes are conducted online". Naturally, there were fears that the sudden switch would have a negative impact on learner outcomes, and universities were keen to survey their students' reactions, and to monitor academic achievement very closely, at least during the first year of the pandemic. Some valuable information was collected and disseminated thanks to this, especially the fairly universal acceptance of the situation by everyone involved, with some understandable reservations or preferences.

Students seem to have generally favored face-to-face classes as their preferred mode of instruction, should it be possible (Paul & Jefferson, 2019; Yaseen et al., 2021; Hiromori et al., 2022, for example). Lack of opportunities for social interaction is one commonly cited reason for this (Almendingen et al., 2021; Obara, 2022). In terms of online learning, data collected by the administration at Musashino University found that there was quite a marked preference for the 'on-demand' format, which allowed students to control their own schedules almost completely, since they could choose when to watch the video lessons posted by their teachers, and only the assignment deadlines really restricted them. Many researchers have found a similar situation (Paul & Jefferson, 2019; Obara, 2022). Unfortunately, this style of teaching imposes a heavier burden than usual on the instructors who have to not only prepare and upload videos of lessons, but also be available to answer questions from students, whenever they are contacted by them about anything that was not easy for them to understand in the video lesson, even if they ostensibly have a set time for this. Consequently, it seems that teachers mostly preferred the real time live-streaming format, using platforms such as Google Meets or Zoom. Microsoft Teams was initially less popular because, as of April 2020, it was extremely poorly adapted to educational needs. In particular, no more than four students could appear on screen together, and only four separate groups could be active in one class (including the main 'room'), and they had to be set up in advance. This contrasted very unfavorably with Zoom, where over 30 students could appear on screen together and an almost unlimited number of groups could be created instantly and opened at the same time, without any prior setting up being required. Teams have now improved by adopting the same functionality as Zoom, it appears.

Studies related to the topic of eLearning and online classes may be variously classified, although two major categories stand out clearly. These are the date of the research in relation to the COVID-19 outbreak and the main focus of each study, which are often related to each other. It seems appropriate to consider some of these studies that have a bearing on the present case before describing our own study and its findings.

Literature Review

1. Pre-pandemic studies

In a report published in March 2017, Dos Santos points out that the major edtech magazines predicted a "future of constant growth for eLearning", with the online course market expected to reach $275-325 billion by 2025 (Dos Santos, 2019). According to an April 2022 report by Global Market Insights, it had already surpassed 315 billion in 2021 and is now forecast to grow to 1 trillion dollars by 2028 (GMI, 2022). This may be an unrealistic figure, only time will tell, but what is certain is that the impact of COVID-19 on the world of learning is evident in financial terms, and these reflect a huge transformation in ideas. People have gone from viewing e-learning as something that basically the richest and fastest developing countries were keen to invest in to realizing that it is something that much of the world is focused on to rescue their imperiled education systems.

Relevant studies pre-pandemic tended to examine online programs in terms of student perceptions of this mode of learning and associated resources (Bringman-Rodenbarger & Hortsch, 2020; Darkwa & Antwi, 2021), or benefits of e-learning and access to the necessary technology (Davies & Graff, 2005; OECD, 2011), particularly focusing on the impact of socioeconomic differences between student home environments. Some gender differences were noted with differing results from one study to another, although this was a factor remarked on in some later studies (see following section).

The paper by Darkwa and Antwi also refers to earlier studies that compared the effects of online learning and classroom learning on student learning and academic performance. The studies published from the late 1990s through the early 2000s generally concluded positive effects for online learning platforms, in terms of encouraging more interaction and participation, with the later work (Davies & Graff, 2005, for example) concluding that this led to better grades overall. The research published a little later (early 2000s through 2015) examined the impact on student performance in greater depth, and also mostly reported beneficial effects for online teaching and learning (Shachar & Neumann, 2010 and Wu, 2015 are useful sources here). Darkwa & Antwi quote several studies which account for this as reflecting the fact that online learning pre-COVID-19 was the result of "a well-planned design of instruction with application of organized model [sic] for designing and developing teaching". In contrast, some of those authors see online instruction in the pandemic period as emergency remote teaching and question its effectiveness.

2. Studies during the pandemic

Unsurprisingly, the sudden expansion of online learning and teaching since the spring of 2020 has stimulated a wealth of research into the various aspects of e-learning. Of most concern have been its ability to deliver results in terms of student motivation and performance, and the majority of studies have focused on comparing traditional face-to-face classes with online classes. Some care is needed when considering the conclusions of some studies, since they do not always make any distinction between real-time and on-demand formats (Yaseen et al., 2021, for example). Inevitably, many studies are not specifically focused on language classes, although we have been fortunate to find several recent works by Japanese researchers that are quite relevant. One article in particular, by Oshima (2021), reporting on real-time online university English lessons is very closely related to the topic of

the present research. Nonetheless, many studies may be generalized as they examine issues that affect teachers and learners across disciplines during this pandemic.

According to her review of several recent papers on the subject of online classes in higher education, Cellini (2021) finds that most recent research indicates that online coursework leads to inferior results in terms of student performance and has also led to lower rates of course completion. She mentions the finding that male students tended to suffer more from the negative effects of taking online courses, together with students who have less academic preparation. This broadly agrees with findings by Wang et al. (2020). Yaseen et al. (2021) also found increased rates of absenteeism and dropping out. Lack of connection with other students and faculty is a theme that is reprised in other papers as a factor depressing performance in online programs versus in-person classes. Darkwa & Atwi (2021) found less interactivity in online lessons, and Otani (2021) reports that students ask less questions. Perceptions of there being less opportunities for communication both with peers and teachers, or having to rely exclusively on electronic forms of communication appeared to contribute to students' negative attitudes, and sometimes led instructors to experience feelings of disconnect from their students (Yaseen et al., 2021). Students also felt there was a barrier to their usual feelings of relatedness (Mitsugi et al., 2021).

As more and more universities were forced to adopt online teaching/learning models, so the problems encountered in delivering or benefitting from instruction seemed to rise and require solutions. Yaseen et al. mention the difficulties experienced in assessing and evaluating students' work and providing feedback. This may be particularly relevant to language classes, especially those which focus on verbal communication skills, where facial expression and body language also play an important part in the total communication. Only recently, one of us heard from a colleague how he coped with this in the final presentations (test) by requiring students to sit back from their cameras while presenting so that they could display appropriate gestures, and other body language (Dornbusch, 2022).

In our own experience, even after more than two years of online teaching and learning, there continue to be complaints of students not really participating appropriately in English communications skills classes because they refuse to use their video cameras. They often claim technical reasons for it, but it is sometimes hard to accept that such problems can affect a whole semester's effort. In other cases, students themselves have been very resourceful in overcoming immediate difficulty, participating in class from various public venues with better Wi-Fi connections than their homes, or sharing a laptop in a classroom when one of them failed to function properly.

There is, in fact, much evidence in the research conducted during the pandemic that students' attitudes and anxieties have been improving over time (Oshima, 2021), with Otani (2021) finding that university students she studied tended to evaluate online lessons higher than face-to-face in terms of visibility and implementation of small tests. The present authors have also noticed that an advantage of real-time online classes for the students is that they can always feel that they are noticed by the teacher, as the teacher is so often on their screen, facing them. However, Otani reports that the students' overall preference was for a hybrid style of teaching and learning, with more online than face-to-face. Hiromori et al. (2022) suggest that personality traits may affect preference for one format over the other, with more nervous students favoring online mode. They felt less anxious and found it more relaxing to give a presentation alone in this way, instead of in the classroom directly facing the audience. Hiromori and his colleagues quote earlier studies which anticipated this result.

Set against these positive developments, Obara (2022) found that, although there was a positive attitude to online classes, students preferred on-demand to real-time lessons, and actually strongly preferred face-to face format because of the improved opportunities for communication (as mentioned above). Mitsugi et al. (2021) also report a generally negative perception of online lessons in connection with decreasing self-confidence and feelings of achievement, increasing anxiety levels, and a weaker sense of relatedness. It is true that this latter study concerned high school students, but they also found some positive aspects: greater awareness of autonomous learning and increased ease of communication with teachers.

What has been lacking so far is more studies that examine how the effects of and attitudes to online learning may change over a period of time. Of particular relevance for our present consideration is that those studies published so far that have evaluated the effects of longer-term exposure to online learning appear to have been heavily biased towards a focus on the changes observed in attitudes and emotional responses to this mode of teaching/learning. (Oshima, 2021) is an unusual case, in that this report examined changes in both perceptions and performance over time, looking at all four skills and including other aspects – attendance, in-class and homework tasks, and general observation. The results indicated that performance improved in all areas in terms of language ability and content. Overall performance was observed to improve and anxieties and negative attitudes decreased as students gained online experience over time. It is to be expected that this type of longitudinal study will be more common in the literature as some countries approach the latter half of their third school year under pandemic conditions.

The Present Study

1. Rationale for the study

As mentioned in the introduction above, there were widespread fears at the beginning of pandemic-driven online classes that students' performance would suffer, especially in terms of achieving academic learning targets. The emotional/psychological aspects were not the immediate focus of attention in tertiary education, although learner behaviors led to a realization that these needed attention. There was, in general, an assumption made by many instructors and institutions that things would improve with experience, possibly influenced at least in part by wishful thinking. Student performance might be negatively affected at first, because everyone was unprepared, but long-term the status quo would be re-established. Our aim was to try to examine the truth of this common assumption by comparing the performance on a standard reading test of two similar groups of 3rd-year students: one in the first quarter of the 2020-2021 academic year, when they still had little online learning experience, and the other in the final quarter of 2021-2022.

2. Method

The subjects selected for the study were essentially convenience samples, being two classes of an elective EFL Reading course taught by the first author, but they contained a fairly similar range of abilities (see Table 1 below) and almost all participants only took the class for half a year. Only two students in Group 2 took all four terms, and one of them had in fact taken the extremely unpopular summer 2-week intensive course rather than the semester-long regular course (both online). The content was essentially the same, but obviously the time for

learning lesson content and absorbing it was much reduced, so that its influence on final learning outcome in Term 4 is debatable.

Groups1 and 2 both studied in class with the same textbook (Oxford University Press's *Inside Reading: Book 2 (Zwier, 2012)*), covering the first half and latter half of the book respectively. They all also had to submit three reports on a piece of reading done outside of class, preferably non-fiction although this was not strictly required. Choosing a variety of reading material was actively encouraged.

Group 1 consisted originally of fourteen juniors, although only eleven sets of results were initially valid for this study as consent forms were not submitted by three of the students. Group 2 was of almost the same size eventually, for similar reasons, with ten students' results being valid for our purpose. These are obviously very small classes, which was perhaps also a reflection of the students' anxiety regarding online classes in general, and their desire to postpone possibly challenging subjects until their senior year when they hoped to be back in the classroom.

Both groups contained a mixture of seniors and juniors, with 5 seniors and 6 juniors in Group 1 and 3 seniors and 7 juniors in Group 2. Given the nature of the current debate regarding gender, it may be difficult to specify exactly, but in binary terms only, Group 1 contained 4 male and 7 female subjects and in Group 2, the genders were evenly distributed. It was decided to examine the effect of gender on final performance results since some other studies have referred to this as a factor apparently affecting attitudes toward online learning and performance as a result of this.

	N	Minimum	Maximum	Mean	Std. Deviation
Group 1 Initial	11	4.2	14.3	10.391	3.4683
Group 2 Initial	10	5.9	14.2	10.450	2.7257

Table 1: Basic Statistics for the Two Groups: Beginning of Course

The instrument used to measure reading comprehension ability at the beginning and end of these courses to determine improvements in performance over a semester was the Extensive Reading Foundation (ERF) online placement test, derived from the Edinburgh Project on Extensive Reading (EPER) Placement Tests, originally created by the Institute for Applied Languages Studies at the University of Edinburgh. This test differs somewhat for each test taker, as reading passages are assigned according to a pre-test reading ability level check. There is a variety of passages available at all levels, and so it is unlikely that anyone would ever take exactly the same test twice. The questions are True/False type, and test takers cannot easily look back to the passage to check for the answers since this will cancel the answers they have already entered for that passage. In a typical test, the reader would be given 3-4 passages to read and respond to comprehension questions on. Time taken for the test is factored into the scores as well as number of correct responses. This test has been widely used and found to be a reliable measure. The first author has employed both the original EPER paper test and the more recent ERF online test and found that either of the two modes may be reliably used to assess ability (Ihata, 2019). In both groups, test format and procedure for taking the test were explained clearly in advance, both orally in class and in a written handout, and subjects were encouraged to familiarize themselves with the test. All tests were administered during a single class period (100 minutes) conducted through Zoom,

with the test available directly from the Extensive Reading Foundation's website. Students were able to leave once the submission of a screenshot of their test result page into the class page on the university learning management system had been confirmed.

3. Findings and Discussion

As mentioned above, it is fairly natural to assume that practice in using unfamiliar equipment or methods of teaching and learning should lead to greater facility with them and, consequently, less stress and improved performance. So we were prepared for the possibility that Group 2 might well outperform the first group because of both longer experience with the mode of learning and slightly more familiarity with the testing procedure (if they had previously taken the first semester's course). However, as mentioned above, only two members of Group 2 had such a possible advantage in terms of previous test taking.

Results were recorded as raw scores from the initial and course-final tests, and the difference in the two scores was also calculated for each subject to measure their individual improvement or otherwise. These results are shown in Table 2 below.

The data were subjected to statistical analysis in the form of a one-way ANOVA, chi-square, and an independent samples t-test. Although a difference between mean values for the two groups is clearly observed, favoring Group 2 with their greater exposure to online learning and testing, it proved to be non-significant on all measures employed.

Final Test Scores & Differences from Initial Scores	N	Minimum	Maximum	Mean	Std. Deviation
Group 1 Final	11	4.0	20.0	11.664	4.6064
Group 1 Difference	11	-.9	5.7	1.273	2.3665
Group 2 Final	10	8.3	15.9	12.420	2.5931
Group 2 Difference	10	-1.7	6.8	1.970	2.3133

Table 2: Comparison of Final Results and Improvement for the Two Groups

This finding is questionable from various aspects. A major issue is, of course, the very small number of subjects involved which would suggest that the somewhat larger variability in initial ability and final achievement for Group 1 (See Tables 1 and 2 above) could have affected the reliability of the comparison. Unfortunately, the very pandemic circumstances that led to expansion in online teaching/learning and inspired this study were also probably a factor in the relatively small class sizes. (In contrast, as we have largely returned to face-to-face teaching the classes currently have 30 or more students, selected from over 40 applicants). Another point that is relevant here is that there would normally have been a fairly large number of students taking both semesters of the course sequentially, enabling direct comparison of the same subjects' performance over time.

Gender proved non-significant as a factor affecting the results in both groups. This might be anticipated as these subjects were in their third year of university, and familiar with Line video calls and Face Time chats with friends even before the pandemic began, so that it was probably not a great stretch for them to adapt to Zoom or Google online classes.

Conclusions

Although the results of the present study did not show a statistically significant effect for longer exposure to online teaching and learning, there was an observed difference, indicating that over time we should probably expect at least moderate improvement in student performance. It might be tempting to consider that the students in question were never particularly disadvantaged by being forced suddenly online for all their classes. However, the small sample size and need to compare two similar groups, imperfectly matched for overall ability level, rather than the same group at different times were weaknesses in the study that should be taken into account.

Both teachers and learners have now acquired the skills necessary to cope with various types of class online and it seems certain that this lesson format will continue to play an important role in many institutions. In relation to this and to the above comments concerning sample size and uniformity, it will be interesting to see the results of studies that will be published from now on which have been conducted with greater numbers of subjects and in institutions which were already implementing online teaching to some extent before the outbreak of COVID-19.

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Developing ICT Competency Training for Teachers of Marginalized Community Schools and Public Sector Schools of Himalayan Region

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Abstract

Information and Communication Technology (ICT) has the potential to improve education and bridge the digital divide in underserved communities. However, teachers in marginalized community schools and public sector schools of the Himalayan region often face challenges in integrating technology into their teaching and learning due to a lack of ICT competency and access to resources. This paper discusses the importance of ICT competency training for teachers in the Himalayan region, as well as the benefits and potential barriers to implementing such training. Based on quantitative analysis on the best practice and a review of literature, the paper recommends a holistic approach to ICT competency training that considers the needs, motivations, and contexts of teachers, as well as the available resources and infrastructure. The paper concludes with some suggestions for further research and action.

Keywords: ICT Competency, Teacher Training, Digital Literacy, Himalayan Region, Marginalized Community Schools, Public Sector Schools

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Introduction

Information and Communication Technology (ICT) has become an integral part of education, with teachers and students alike relying on it for learning and teaching. However, a lack of ICT competency among instructors in the Himalayan region's public and underprivileged schools prevents the efficient use of ICT in the classroom. This paper aims to discuss the importance of developing ICT competency training for teachers in these schools and provide recommendations for implementing such a program.

The himalayan region is a diverse and challenging area in terms of geography, culture, and socio-economic development. Many schools in this region, especially those in marginalised communities and the public sector, face numerous challenges in providing quality education to their students. These challenges include a lack of qualified teachers, limited resources and infrastructure, and cultural and linguistic barriers. In recent years, ICT has been seen as a way to overcome some of these challenges and enhance education in the Himalayan region. Thus in this paper we will discuss the current status of teachers' ICT competency and its implications in the region's teaching and learning process.

This study is a result of the filed based ICT competency training provided to teachers in marginalized community schools and public sector schools of Helembu and Tibetan Refugee School in the month of March and September 2021.This quantitative study is an effort to understand the need of ICT competency training for teachers of marginalized community schools and public sector schools of Himalayan region. The sections in this paper are organised to get a better understanding of the current status of the study.

The paper is organised as follows: first, it discusses the benefits and potential barriers to implementing ICT competency training for teachers in the Himalayan region. Second, it reviews the literature on ICT competency training for teachers, including the different models and approaches, the components and domains of ICT competency, and the factors that influence the effectiveness of such training. Third, it presents a recommendation for a holistic approach to ICT competency training in the Himalayan region, based on the needs, motivations, and contexts of teachers, as well as the available resources and infrastructure. Finally, it suggests some areas for further research and action.

Purpose of the study

The establishment of ICT competence training for teachers in marginalized community schools and public sector schools in the Himalayan area of Nepal is being studied in order to comprehend the potential and obstacles involved in putting such training programmes into action. It is feasible to pinpoint the particular requirements and resources needed to incorporate technology into the classroom successfully by researching the experiences of instructors and students in the area. The design and execution of ICT competency training programmes that are customized to the unique context of the Himalayan area can be influenced by this knowledge. Additionally, research on how ICT competency training affects student learning outcomes may support policy and decision-making by demonstrating the worth of funding such training programmes.

Benefit and challenges on implementing ICT competency training

The implementation of ICT competency training for teachers in the Himalayan region has the potential to bring a number of benefits to both teachers and students. Some of the benefits of ICT competency training for teachers include:

Enhanced teaching effectiveness: ICT competency training can help teachers to effectively integrate technology into their classrooms, leading to more engaging and interactive teaching methods. This can improve student learning outcomes and support the development of 21st century skills such as problem-solving and critical thinking.

Improved access to educational resources: ICT competency training can provide teachers with access to a wider range of educational materials and resources, including online databases, educational websites, and virtual learning environments. This can help to enhance the quality of education, particularly in underserved and marginalized communities where access to traditional educational resources may be limited.

Increased professional development opportunities: ICT competency training can provide teachers with the opportunity to develop new skills and knowledge, as well as connect with other educators through online professional development opportunities and virtual collaboration.

However, there are also potential barriers to implementing ICT competency training for teachers in the Himalayan region. Some of the challenges that may be faced include:

Lack of infrastructure and resources: Many rural and remote areas in the Himalayan region may lack the necessary infrastructure and resources, such as reliable internet access and computers, to facilitate the effective use of ICT in the classroom.

Teacher readiness and confidence: Some teachers may be hesitant to use technology in the classroom due to a lack of readiness or confidence in using ICT. This may require additional support and resources to help teachers build their confidence and skills.

Ongoing support and maintenance: ICT competency training should not be a one-time event, but rather an ongoing process of professional development and support. This may require resources for ongoing training and support, as well as technical support and maintenance to ensure that technological resources are functioning properly.

Cultural and linguistic considerations: It is important to consider the cultural and linguistic context of the Himalayan region when designing and implementing ICT competency training programs. This may involve adapting training materials and resources to be culturally and linguistically appropriate, as well as providing support for teachers who may not be fluent in the language of instruction.

Significance of the study

The Himalayan region is home to a diverse and marginalized community, many of whom rely on education as a means of social and economic mobility. However, access to quality education remains a challenge, particularly in rural and remote areas. One way to address this

challenge is to invest in the development of ICT competency training for teachers in marginalized community schools and public sector schools.

ICT refers to the use of electronic devices, software, and networks to access, process, and exchange information and knowledge (International Telecommunication Union (ITU), 2020). ICT has the potential to improve access to education, enhance the quality of teaching and learning, and promote equity and inclusivity in underserved communities (Almerich et al., 2016; UNESCO, 2016). However, the effective integration of ICT into education depends on the competency of teachers in using and leveraging technology for teaching and learning (Becta, 2004; Voogt et al., 2016). ICT competency refers to the knowledge, skills, attitudes, and values that enable teachers to use ICT effectively and appropriately in their professional practice (Koehler & Mishra, 2009). Without ICT competency, teachers may not be able to fully exploit the potential of technology to enrich and transform their teaching and learning, and may also face challenges in keeping up with the changing demands and expectations of the digital age(Drent & Meelissen, 2008; Voogt et al., 2016).

Given the importance of ICT competency for teachers in the Himalayan region, this paper aims to review the literature, analyse the quantitative data and best practices on ICT competency training for teachers, and provide recommendations for developing such training in marginalized community schools and public sector schools of the Himalayan region.

Project Execution

The project was executed as a series of complete tasks including physical training session, group sharing and Asynchronous enrollment in Google classroom for further collaboration.
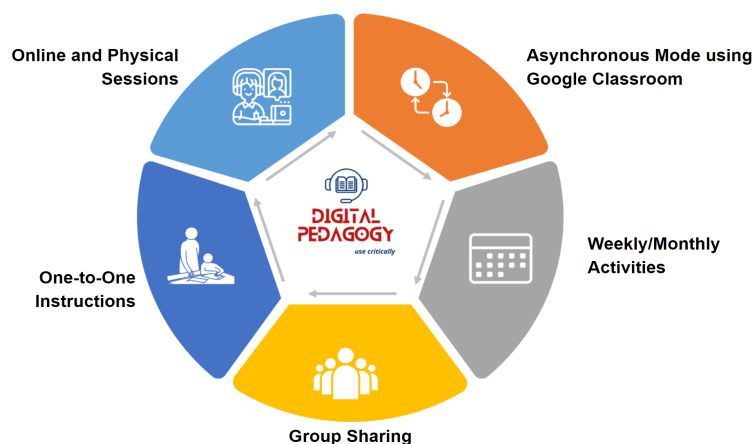
Figure 1: Project execution framework

Theoretical foundation

The theoretical foundation for this study is based on the idea that the use of ICT in education can enhance the quality of learning and teaching, and support the development of 21st-century skills. This concept is supported by research, such as the OECD (2016) report, which found that the effective use of ICT in education can provide access to a wealth of resources, support the personalization of learning, and facilitate the development of critical thinking and problem-solving skills.

Another theoretical foundation for this paper is the importance of teacher ICT competency in enabling the effective use of ICT in the classroom. The UNESCO (n.d.) ICT Competency Framework for Teachers defines ICT competency as the ability to use ICT tools and resources for teaching and learning purposes, including both technical skills and pedagogical skills. Research has shown that positive self-efficacy beliefs, or the belief in one's ability to successfully use ICT in teaching, can increase the extent to which teachers are willing to transfer skills learned during in-service training to the classroom and explore alternative methods of instruction (Bray-Clark & Bates, 2003).

The project was conducted in timeline of:

Task	Start Date	End Date
Preparation	10th Mar 2021	20th Mar 2021
Training	21st Mar 2021	25th Mar 2021
Post training data collection	26th Mar 2021	28th Mar 2021
Post- training data analysis	29th Mar 2021	1st Apr 2021

Table 1: Tibetan Refugee School project timeline

Task	Start Date	End Date
Preparation	15th Sep 2021	24th Sep 2021
Training	25th Sep 2021	27th Sep 2021
Post training data collection	26th Sep 2021	27th Mar 2021
Post- training data analysis	28th Mar 2021	30th Sep 2021

Table 2: Helambu region schools project timelines

Study Approach and Methodology

In the context of this study on the development of ICT competency training for teachers in marginalized community schools and public sector schools in the Himalayan region, possible parameters include:

Geographical scope

The study is focused on the following Study Areas.

Helambu (Himalayan Region)
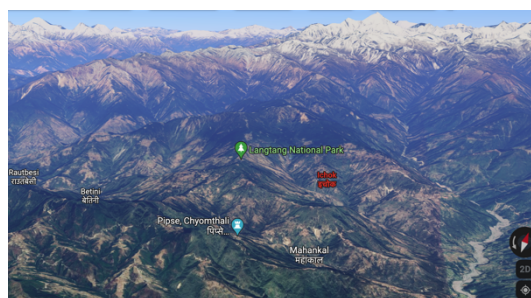
Figure 2: Helambu School Zone

Helambu is a region of highland villages in Nepal, about 80 km from Kathmandu with the population of over 20,000. The location, which is located at an elevation of 1700-2500 meters, attracts visitors from all over the world as a destination for trekking and enjoying nature. However, the economic status of the village remains challenged due to a lack of education and training to improve the livelihood of the people. Aside from the government prioritising health and education in the region, there is a need to raise awareness and financial literacy among locals so that they are aware of available resources and opportunities to improve their lives. Among all the challenges including geography, opportunity, access and availability ICT literacy in Helambu is still in its infancy.

36 teachers from 9 schools participated in the research, which was conducted face to face. The instructors received a 16-hour training session on how to use ICT effectively in the classroom.

Refugee (Tibetan Community Schools)

Figure 3: Tibetan school Zone

Tibetan refugee schools in Nepal situated at the altitude of 700 meters - 3400 meters are educational institutions that have been established to provide education for the Tibetan refugee community in Nepal. In general, these schools face many challenges, such as limited resources, lack of trained teachers, cultural differences, and language barriers. Despite these difficulties, many Tibetan refugee schools in Nepal have made significant efforts to provide quality education to their students, often going above and beyond the minimal standards set by the Nepalese government. They also strive to preserve Tibetan language and culture among the students, which is very important for the Tibetan refugee community. Overall, the education provided by Tibetan refugee schools in Nepal plays a vital role in the lives of the Tibetan refugee community, helping to preserve their culture and language while providing them with the knowledge and skills they need to build a better future.

80 teachers from 5 schools participated in this study, which was conducted face to face. The instructors received a 36-hour training session on how to use ICT effectively in the classroom.

Research method

The quantitative study was conducted in a face to face environment. A pre training survey was conducted to have a better understanding of the current ICT level of teachers. Based on the responses a training program was developed and delivered to meet the need of the participants. On completion post survey was conducted with the participants to evaluate the outcome of the training.

Figure 4: Indoor and outdoor training

Literature Review

Investing in the development of ICT competency among teachers has the potential to enhance the quality of education, particularly in marginalized and underserved communities. According to the UNESCO Institute for Information Technologies in Education (IITE), ICT can facilitate personalized learning, support the development of 21st century skills, and improve teacher effectiveness (UNESCO, n.d.). In the Himalayan region, where access to educational resources and opportunities is often limited, ICT can also provide a means for teachers to access a wider range of educational materials and connect with other educators. However, the implementation of ICT competency training for teachers in the Himalayan region is not without challenges. One major challenge is the lack of infrastructure and resources, such as reliable internet access and computers, in many rural and remote areas. In addition, there may be a lack of teacher readiness and confidence in using ICT in the classroom. It is therefore important to address these challenges in the design and implementation of ICT competency training programs.

The COVID-19 pandemic has led to a need for more in-depth research into various aspects of technology used by the teachers. Thus education and learning has seen a huge digital-shift in the last few years. This paradigm shift in learning after the pandemic has led teachers towards the ultimate need of digitizing, delivering and monitoring the classroom content. Before the pandemic, skills needed towards ICT capabilities of a teacher were less of a priority, mostly in places where geographical and political influences overshadow the agenda. As well, the

pollution of information from the internet has brought more confusion in the mindset of students . Both teachers' digital competence and their competence beliefs related to ICT are important for the successful integration of digital technology in teaching and learning settings (Hobbs ,2017).

A nation's economic growth can occur with increases in economic value generated by its citizens. "New Growth" economic models emphasize the importance of new knowledge, innovation,and the development of human capacity as the sources of sustainable economic growth (UNESCO, n.d.). Studies suggest that positive self efficacy beliefs can increase the extent to which teachers are willing to transfer skills learned during in-service training to the classroom, and can lead teachers to explore alternative and improved methods of instruction (Bray-Clark & Bates, 2003).

The study focuses on different stages of training based on the technological, pedagogical, and content knowledge 'Technological Pedagogical Content Knowledge (TPACK)' framework as proposed by Mishra & Koehler (2006), which was implemented in the projects for rural Nepal. The scope of the projects accomplished involving teachers in the refugee camp and high altitude public schools of rural Nepal will be discussed. Along with the finding of the project which demonstrated that the teachers getting basic training on ICT with high motivation were seen adopting the technology much more quickly. Keeping in mind that the accessibility of broadband internet vs accessibility of hardware act as an nonlinear development dots in rural setup. Further discussion involves various methodology and approaches (e.g. learner centric) implemented in the project towards using the basic ICT tools during the training for the teachers. This approach also supported teachers to develop contents using ICT to identify the right strategy for technology integration toward engaging classroom learning. The overall project successfully concluded with 60 refugee school teachers and 37 public school teacher's participation achieving 100% expected deliverables.

TPACK Model

The TPACK (Technological Pedagogical Content Knowledge) model is a framework for understanding the knowledge and skills that are required for effective teaching with technology. According to the TPACK model, teachers need to have a combination of three types of knowledge in order to effectively integrate technology into their classrooms:
- Technological knowledge
- Pedagogical knowledge
- Content knowledge
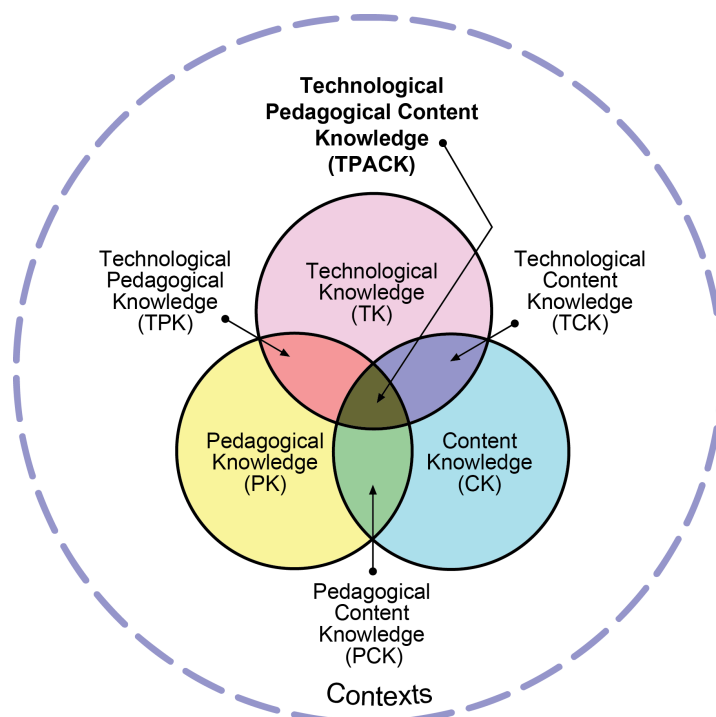
Figure 5: TPACK Model.

The use of ICT in education is becoming increasingly important as technology continues to evolve. There are different levels of ICT integration in education, and these levels are often referred to as the "ICT integration continuum". One such continuum proposed by Majumdar (2013) is:

1- Emerging: This level is characterized by becoming aware of ICT, applying productivity tools and purchasing computing infrastructure, literacy and basic skills, typing, and email questions, using presentation software like MS-PowerPoint/Google Slides with Projectors.

2- Applying: At this level, teachers learn how to use ICT in subject teaching, enhancing traditional teaching, and using technologies like simulation, virtual science lab, and GeoGebra to facilitate instruction.

3- Infusing: This level is characterized by understanding how and when to use ICT, facilitating learning using multi-modal instruction, and using tools such as 4Cs Project work, choices, and support learning approaches.

4- Transforming: At this level, teachers are specializing in the use of ICT, creating and managing innovative, open learning spaces and focusing on learner-centered instruction, solving real-world problems not possible in traditional classrooms.

The goal of ICT integration in education is to move towards the higher levels of the continuum as much as possible, which allows educators to take advantage of the full potential of technology to enhance teaching and learning in their classrooms. This four stages of ICT integration for teaching effectiveness involved integration with the curriculum, collaboration between teacher and students, active learning and assessment, and professional development (Majumdar, 2013; Atsoglou & Jimoyiannis, 2012; Mishra & Koehler, 2006).

A meaningful integration of technology in education and refers to the use of technology in a way that enhances and supports the teaching and learning process (Majumdar, 2013). This involves using technology in a way that is relevant and purposeful, rather than simply using it for the sake of using it. Meaningful integration of technology requires that teachers and students have the necessary skills and knowledge to effectively use technology in their teaching and learning activities, and that the technology is used in a way that aligns with the curriculum and educational goals.

Entrepreneurship, Science, Technology, Engineering, Arts, and Mathematics(eSteam) pedagogy is an approach to teaching and learning that integrates entrepreneurship, science, technology, engineering, arts, and mathematics (STEM subjects) in a way that is relevant, meaningful, and engaging for students (Majumdar, 2013). The goal of eSteam pedagogy is to foster the development of 21st century skills, such as problem-solving, critical thinking, and creativity, by providing students with opportunities to apply their knowledge and skills in real-world contexts. eSteam pedagogy may involve the use of technology, such as computers and software, as well as hands-on, experiential learning activities and project-based learning (UNESCO, n.d.). According to the literature that is currently available, such ICT integrated training improves instructors' capacity to effectively implement their teaching methods to meet the demands of 21st-century learners.

Findings

A pre-training survey was conducted among the participants, 36 participants from Helambu based schools and 80 from Tibetan School. Based on this survey, the valid data of 30 participants from each segment of school are being analyzed and it appears that the majority of respondents (20 out of 30) use their camera and video apps on their mobile frequently. Most respondents (10 out of 30) are partially familiar with the hardwares and softwares of a computer, while a smaller number (4 out of 30) are not familiar at all. There is a roughly equal distribution of respondents in terms of internet access, with 19 out of 30 reporting that they have access to the internet on their mobile or computer, 10 out of 30 reporting that they sometimes have access, and 1 out of 30 reporting that they do not have access. Finally, a small number of respondents (8 out of 30) reported that they use their camera and video apps on their mobile, which is not a clear response and may require further clarification.

School	Appointed teachers	Level of education	Years of teaching experience
Helambu	100% - Government Appointment	Bachelors / Masters	11
Tibetan	100% (Government Appointment and funded program included))	High School/ Bachelors	16

Table 3:Teacher appointment status and experience

According to the response received, both schools have instructors who have been selected by the government. Both schools have instructors with a minimum of ten years of teaching experience, from high school to master's degrees.

The following section discusses the pre training survey result using TPACK methodology.

1.   Technology knowledge

School	Knowledge of hardware and software	Using applications to learn	Using tools to prepare teaching/ lesson plans
Helambu	27%	11%	77%
Tibetan	42%	42%	27%

Table 4: Technology knowledge and use of technology in classroom

Based on the data collected it is evident that teachers' technological knowledge in the Helambu school, 27% of teachers reported having knowledge of hardware and software, 11% reported using applications to learn, and 77% reported using tools to prepare teaching/lesson plans. In the Tibetan school, 42% of teachers reported having knowledge of hardware and software, 42% reported using applications to learn, and 27% reported using tools to prepare teaching/lesson plans.

2.   Pedagogical Knowledge

School	In depth knowledge of Subject /book content delivery	Understands issues in subject matters teaching	Understands student learning
Helambu	Competent	Competent	Competent
Tibetan	Competent	Competent	Competent

Table 5: Pedagogical knowledge

In both Helambu and Tibetan schools, the teachers are described as "competent" in all three areas. This suggests that the teachers in these schools have a strong understanding of the content they are teaching, as well as the issues and challenges that may arise in teaching that content. They also have a good understanding of how students learn, which can help them to design and deliver effective lessons.

3.   **Content Knowledge**

School	
Content Depth	
Subject Matter	
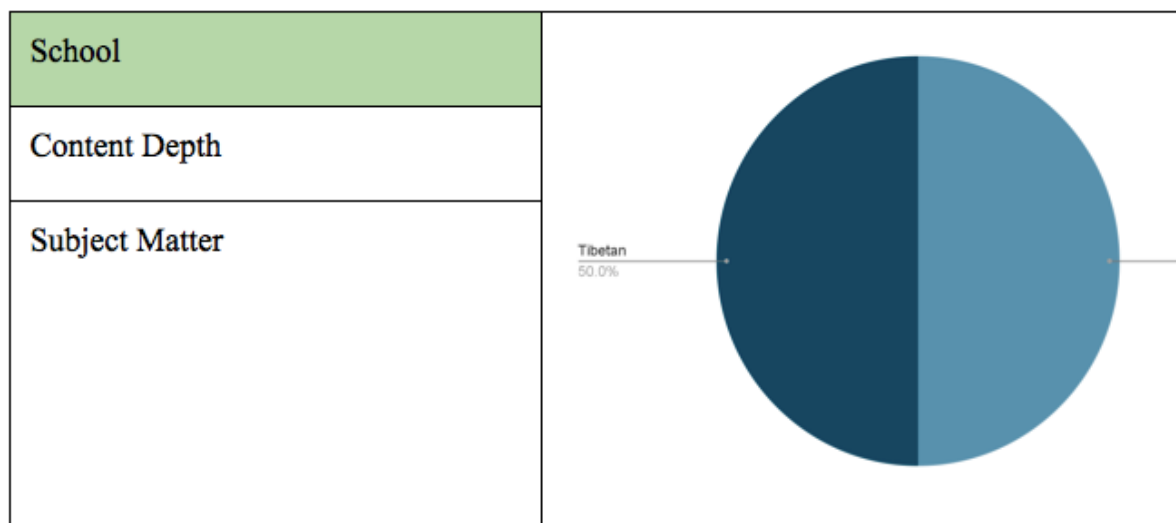
Table 6 : Content knowledge

The data suggests Tibetan and Helambu school perform at 50% in content knowledge, it means that the respondants at these schools are not performing at an optimal level in their understanding and application of the subject matter. It could mean that their scores on tests or assessments in a particular subject, such as science or math, are only averaging 50% and they may lack understanding of the fundamental concepts, principles, and theories of the subject, and may not be able to make connections and analyze information at a deeper level in comparison to other schools or students who perform better. It is important to note that other factors such as access to education, resources, and teaching methods can also affect these performances.

The data collected shows that teachers in the Helambu and Tibetan schools have varying levels of technological knowledge, with 27% and 42% of teachers in the Helambu and Tibetan schools respectively having knowledge of hardware and software. Teachers in both schools are described as "competent" in pedagogical knowledge, having a strong understanding of the content they are teaching, as well as the issues and challenges that may arise in teaching it. However, the data suggests that the teachers in these schools perform at only 50% in content knowledge, indicating that they may lack understanding of the fundamental concepts, principles, and theories of the subject, and may not be able to make connections and analyze information at a deeper level. Other factors such as access to education, resources, and teaching methods may also affect these performances.

Study Outcome

This section compares the results of the pre- and post-surveys to determine the effectiveness of the training program in improving the teachers' ICT skills.

Technology Knowledge

School	Are you comfortable identifying the hardware and software parts of the computer system?	Type of Assessment used	Awareness on cyber security and technology uses
Helambu	87% Said Yes	Classroom based activity task	Adopted by 100%
Tibetan	92% Said Yes	Classroom based activity task	Adopted by 100%

Table7: Technology knowledge

The post survey data suggests that the majority of respondents at both the Helambu and Tibetan schools are comfortable identifying the hardware and software parts of a computer system. The percentage of participants who answered "yes" to the question is 87% in Helambu and 92% in Tibetan school which is a good indication that they have a good understanding about the physical and logical components of a computer system.

It also indicates that the type of assessment used was a classroom-based activity task and it was adopted by 100% of the participants in both Helambu and Tibetan schools. This type of assessment is effective in measuring learners' knowledge and skills because it allows them to apply their understanding in a hands-on and interactive setting.

Additionally, it is reported that both schools have adopted the awareness of cyber security and technology uses, which is a crucial aspect in today's digital age. It is important that participants are aware of the potential risks and how to protect themselves and others from cyber threats and misuse of technology.

It's important to note that this is just a snapshot of a specific number of learners' understanding and it's important to conduct further assessments to ensure a comprehensive understanding of the learners' technology knowledge.

Pedagogical Knowledge

In the context of this study, the pedagogical knowledge is being measured through feasible survey conducted by academic and industrial research group, the survey identifies the teachers' understanding and practices in teaching, it also looked at the strategies they use and the resources they access to support student learning. The survey identified the areas where teachers need additional support or professional development opportunities to improve their pedagogical knowledge and ultimately enhance the students' learning outcomes. Besides pre training resulted in participants being competent in all aspects post training survey identified gaps with the need for additional support in hardware and software accessibility.

Overall the study found that majority of respondents in Helambu and Tibetan schools have a good understanding of the physical and logical components of a computer system and have adopted the awareness of cyber security and technology uses. The study also found that the

pedagogical knowledge of the teachers in these schools need additional support or professional development opportunities to improve their pedagogical knowledge and enhance students' learning outcomes. Additionally, the study suggests that content knowledge remains a crucial area of focus.

Limitation of the study

The overall project is limited with the conclusion with 79+ refugee school teachers and 35+ public school teacher's participation achieving 100% expected deliverables.

Recommendations

In order to effectively develop ICT competency training for teachers in marginalized community schools and public sector schools in the Himalayan region, the following recommendations should be considered:

R1- Identify and address infrastructure and resource barriers: In order to facilitate the effective use of ICT in the classroom, it is important to ensure that teachers have access to reliable internet and appropriate technological resources. This may involve investing in infrastructure development, such as the installation of internet connectivity or the provision of computers, as well as technical support and maintenance.

R2- Focus on teacher readiness and confidence: To ensure the success of ICT competency training programs, it is important to consider the readiness and confidence of teachers in using technology. This may involve providing support and resources for teachers to build their confidence and skills in using ICT, such as online training courses or professional development opportunities.

R3-Provide ongoing support and professional development: ICT competency training should not be a one-time event, but rather an ongoing process of professional development and support. This may involve providing ongoing training and support for teachers to keep up-to-date with the latest technologies and pedagogical approaches, as well as opportunities for collaboration and peer learning.

R4-Incorporate local context and needs: It is important to design ICT competency training programs that are tailored to the specific needs and context of the Himalayan region. This may involve consulting with local educators and community members to identify the specific challenges and opportunities related to the use of ICT in education.

Conclusion

The use of ICT in education has been shown to enhance the quality of learning and teaching, and to support the development of 21st-century skills. However, many teachers, particularly in marginalized and public sector schools in rural areas, lack the necessary ICT competency to effectively use these tools in the classroom. The COVID-19 pandemic has highlighted the need for digital literacy among teachers, and the importance of integrating ICT into teaching and learning practices. The TPACK framework, which focuses on technological, pedagogical, and content knowledge, has been successfully implemented in training programs for teachers in rural Nepal. These programs have shown that teachers who receive basic ICT training with high motivation are able to adopt technology more quickly and

effectively integrate it into their teaching practices. The use of learner-centric approaches has also been found to be effective in supporting teachers to develop content and identify the best strategies for technology integration. Overall, ICT competency training for teachers in marginalized and public sector schools in rural areas can lead to improved learning outcomes for students and the development of sustainable economic growth.

Investing in the development of ICT competency training for teachers in marginalized community schools and public sector schools in the Himalayan region has the potential to enhance the quality of education and support the development of 21st century skills among students. However, it is important to consider and address the challenges and needs of the local context in the design and implementation of ICT competency training programs. It will be interesting to see further projects and studies implemented for teachers widely considering various challenges to achieve education for all.

Acknowledgements

Appendix:

1.   Pre Training Survey questionnaire

School Name
Teachers Name
Age
Highest Level of Education
Teaching Subject and Grade ?
Type of teaching contract-
Mobile Phone [Teacher Own Mobile phone]
Mobile Phone [Teacher Use Internet from mobile phone]
Mobile Phone [Student/ Parents Own Mobile phone]
Mobile Phone [Student have access to internet at home]
Computer [Does the school has computer]
Computer [Do you use computer at school/home]
Have you ever used ICT/ Multimedia tools like (Projector, Smart Board etc) inclassroom?
Remarks or notes

Question table 1: Pre training preparation survey questions

How often do you use your camera and video apps in your mobile?
Are you familiar with the hardwares and softwares of the computer?
Do you have access to the internet / data packages in your mobile or laptop/ desktop?
If yes, how often do you use the internet?
What do you mostly use the internet for?
Are you familiar with ICT and its practices?
Are you familiar with the offline apps/ Ms Office packages in your mobile?
If yes, have you used it for facilitating your learning and lesson plans?
Have you heard of cyber security or internet ethics?
What do you want to learn in these two days?
Do you know how to use a web browser (Firefox, Chrome or Internet Explorer) to get around the internet?
Do you know how to use a standard word processor such as Microsoft Word, Google Docs, or Pages?

Question table 2: Pre training survey questions

2.   Post Training survey questionnaire

Please share one of your best lessons from these session?
Are you comfortable identifying the hardware and software parts of the computer system?
What tools apps do you plan to use for your teaching purposes, mention at least three.
What digital tools do you plan to use for your teaching purpose?
Has the sessions helped you enhance your overall knowledge on ICT?
Would you like to continue with further training on online education, provided there's a stable internet?
Will you practice and share the guidelines of cyber security among your circle?
Has the sessions helped you enhance your overall knowledge on ICT?
Would you like to continue with further training on online education, provided there's a stable internet?
Will you practice and share the guidelines of cyber security among your circle?

Question table 3: Post training survey question

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Language Development and Creative Expression Through Nonsense Verse

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Abstract

The present article examines the development of language skills through unconventional expression as used in the nonsense verse of Edward Lear and Lewis Carroll. It analyzes student reaction to and comprehension of these readings from an extratextual perspective prior to instructor-led readings and peer interpretation exercises. Student exercises to be examined include presumed definitions of nonsense vocabulary prior to reading as well as theorized meanings based on contextual information realized upon full review of the text. Paratextual information pertaining to the readings are shared to explore the challenges of teacher-led discussions of the extant artistic and colloquial language and determine whether or to what degree presentation of this material is effective for language building. The study acknowledges the limitations of L2 studies without grounded, standardized vocabulary, but notes that language has a tendency to rapidly evolve and provides case studies of elevated colloquialisms, coined words/phrases, and non-standard expressions in common use. It concludes that the often untaught expressions, idioms, and dialect contained in this type of material provides holistic value to language learning via cultural context.

Keywords: Language, Literature, Nonsense Verse, Edward Lear, Lewis Carroll

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Introduction

Extensive reading practices in the language classroom may take many forms, but often for lower-level language learners the material is kept rather simple. Those students who have yet to master a functional level of English require an easy entry into their studies and therefore are often provided with graded readers that have limited vocabulary and use fairly straightforward sentence structure following simple grammar rules. Textbooks for English discussion and communication classes tend to follow similar designs with a tendency for units to cover such topics as introductions, describing food, and giving/receiving directions around town. These basic entryways to language practice are commonplace and useful.

Concern arises, however, in the extent of such simplicity and their applicability to young adult students. Many of these basic texts are lacking in the human element insofar as they do not aid in discussion of complex thought, culture, philosophy, or other issues inherent to the human condition. Therefore, to expand student access to a more holistic collection of cultural and philosophical thought, the classes being presented in this project were exposed to an array of poetry ranging in difficulty and degree. For the purposes of the present study, I have chosen to focus on efforts using the nonsense verse poetry of Edward Lear and Lewis Carroll. Students in this study were introduced to the texts, given pre-reading discussion questions revolving around the themes of the poems. They were then guided through close readings and provided with post-reading discussion questions to gauge their reactions and comprehension (see Appendix A). At the end of the project, students were asked to fill out a questionnaire assessing their initial concerns with the project, what they learned, and whether they felt the material was useful (see Appendix B).

Students involved with the present study were low to moderate level freshman English Culture & Writing students at Daito Bunka University in Saitama, Japan. Many of the students had yet to take the TOEIC exam and expressed concern about their conversation and comprehension abilities. The classes in question would ordinarily use basic introductory text material but students were able to follow along with simple lectures and brief discussion questions. It should be noted that the material used for this study – the poetry of Lear, Carroll, and many others – had been used in other classes at other universities as well, usually with students of moderate to advanced language skills and often higher grade levels and other course contexts.

Theory

My goal with this project was similar to that of David I. Hanauer (2012) as he worked with his students to write poetry, attempting to be practical while focusing on "the aim of language learning: facilitating personally meaningful expression." In my past experiences with communication classes, a lot of time had been spent with guidance through the fundamentals of vocabulary, grammar, and other functional aspects of the language. This is all fine, of course, but these practices have a tendency to stray from the human element. Also like Hanauer, I attempted to restructure the class focus away from "an emphasis on a decontextualized and managerial learning process towards an understanding of the presence of a living, historically situated, individual human being at the center of the language learning process." (p. 106). It has long been my concern that many introductory textbooks, while practical, do not allow for such a close and "living" experience with the language. In my estimation, language education at any level should revolve around the human experience via

cultural and philosophical contexts, which is achievable through the use of poetry and other forms of literature.

Where Hanauer and I differ, however, is largely in execution. Hanauer's work led to students writing poetry in the target language as an end goal of their extensive studies. This is an intriguing exercise, one which I have attempted to replicate in prior classes to varying degrees of success. The classes referenced in the present study were unfortunately of a basic introductory English comprehension level and therefore any attempt at composition would have been far too extreme a challenge.

Application

Challenges are, nevertheless, ever present in the EFL classroom as, for the most part, lessons tend to be conducted primarily in the target language. This often adds to the difficulties of beginner-level students and/or those who lack confidence in their abilities to follow along with the details of instruction. This very much proved to be an issue in the early stages of my poetry reading classes in an L2 context as it required a great deal of scaffolding and other preparatory efforts for the students. Poems were therefore presented as a discussion of themes as opposed to a rigorous adherence to the text itself. Student discussion of the material was conducted in pre-exposure & post-exposure phases wherein students could learn about the authors, study and practice using some key vocabulary, and discuss generalized topics related to the readings themselves. The modes of engagement – student discussion and close reading of the text and paratext –served as an evaluation of student comprehension of the material as well as their ability to apply interpretive pressure based upon extratextual analysis.

For the purposes of the present study, I decided on the use of traditionally children's poetry and focused on the work of Lear and Carroll. While there are of course a wide variety of nonsense verse, children's stories, and other nonstandard readings, these authors provided a simple enough approach for basic comprehension while having a heft of subtext for further exploration of meaning. In conjunction with the analysis of meaning – or lack thereof – in these readings, the stylistics of Lear's and Carrol's writing provided the additional benefit of exposing students to otherwise unfamiliar and often untaught expressions, idioms, and dialect. This had the added benefit and difficulty of the prevalence of invented terms which the students needed to navigate in order to understand the narratives.

A major conceit of the present study was to analyze student awareness of vocabulary being used, whether they viewed the example terms as being common or invented. This survey was conducted for two classes – English Culture B and English Writing B – for ten vocabulary terms, equally mixed between common and invented "nonsense". Both classes were of equivalent English ability, but only the English Culture class had studied poetry in English before. As an example of the terminology being used, students were asked to analyze the word "runcible" and whether it is definitely or probably common in English, or whether it is definitely or probably nonsense. Both classes were mostly able to correctly identify the term as being nonsense with English Culture reporting at over 77% definitely or probably nonsense and English Writing reporting at 88.9% definitely or probably nonsense (see Appendix B). I attribute most of these correct answers as a result of extensive lecturing on the term itself and how it has entered the modern lexicon as a "runcible spoon" meaning a "fork-like spoon". It was clarified to students that, while it now exists in the lexicon in some limited capacity, it is still regarded as nonstandard.

There was some discrepancy, however, with other terms that had not been fully explored in lectures, particularly with the nonsense vocabulary as used in Carroll's "Jabberwocky". For instance, the term "galumph" from this poem caused a small amount of confusion. As the poem reads "He left it dead, and with its head / He went galumphing back" (Carroll 1871). The use of this term in this way – a load-bearing verb – seems to have tricked the majority of students involved into thinking it was a common standard term. Using the same ranking system in the questionnaire, English Culture reported at 66.6% probably/definitely common, while 27.8% believed it to be probably nonsense. Only one student (5.6%) from this group correctly identified the term to be definitely nonsense. English Writing reported at 33.3% probably common, while 66.7% identified the term as probably/definitely nonsense. The cause of the discrepancy between the classes is unclear, but likely due to differing engagement in the lectures.

Future Implementation

Regarding the use of "Jabberwocky" and the nonsense vocabulary used, it can be difficult to determine student reaction to the material as a whole when taking the famous author Lewis Carroll out of the conversation. When asked whether they were aware of the author, most students in the classes were. When clarified that he was the author of the *Alice in Wonderland* books, the remaining students recognized the title and later, by extension, the author. It is not out of the question, therefore, that such prior extratextual knowledge may have colored student reaction to the material being used. They were well aware of the nature of Carroll's writing through cultural information if nothing else.

Existing knowledge of the original authors seems to have some effect on student receptivity to the material upon later lecturing. Cui and Swider (2018) conducted similar studies on how students react to material based on what they do or do not learn about the authors ahead of time. In their article, they suggest that much of this appears to be based on how students identify with the authors or in how much they feel they can trust them as writers. The findings of their experiments in which only some students viewed biographical information prior to reading, indicate that "that the information about the author, which highlighted his/her achievements and reputation, may make the participants think that his/her poem has more underlying meanings" (p. 43). The effect of such a phenomenon on reading poems like "Jabberwocky", particularly given the widespread appeal of the *Alice in Wonderland* books, may indeed have some effect on how students view the material. With Carroll being as recognized as he is, it is conceivable that language learners who are exposed to his work would feel that any misunderstanding of the vocabulary contained in the writing is a fault of their own as opposed to the inherent nature of the Carroll's trickery with his nonsense verse.

Cui and Swider further commented on the amount of paratextual information provided to students, cautioning that instructors should practice moderation: "in literary education, paratexts should be carefully selected depending on specific teaching objectives" (45). This is particularly concerning as the poets chosen for the present study have a fair deal of literary historical fame, particularly in the case of Carroll. Cui and Swider continue to warn about how "prior knowledge or expectations also affect what and how much information is detected and processed" (45). Reflecting on the project's outcomes and student receptivity allows room to consider these warnings. The concern for instructors becomes how much of the information students are absorbing align with language learning and ability to identify sense from nonsense as well as how best to structure lessons around this kind of material to allow for development while exploring the themes of the chosen texts.

Reception

A few common issues arose from the student reflection survey conducted after our lectures (see Appendix B). While reception to the material varied from neutral to positive, student comments provided additional insights to their perception of the project, its applicability to their general studies, and suggestions for future implementation. The survey question "what changes do you think should be made in our approach to teaching/discussing these or other poems?" resulted in requests for further explanation of the source material, often commenting on the difficulty of the material. There were furthermore requests for additional time devoted to discussion and for general refinement of how the material is presented with one student clarifying the request, "How about incorporating a few explanations of grammar, idioms, and expressions using poetry? … Since the teacher is a native English speaker (probably), explanations from a native English speaker's point of view is an advantage that Japanese teachers do not have." The student's comments here highlight one of the goals I had hoped to promote: increased interest in idioms, expressions, and nonstandard forms of speech.

Many students commented on the general usefulness of the cultural or perspective element: "I think it's important to think from a different perspective…" and "I think I learned about the creativity of poems and thought for poem changing". These students, while still earnestly trying to understand the functionality of the target language, acknowledged the importance of the cultural aspects of our material. As they are from the English Culture B class at the university, perhaps this response may be expected.

Still, there were comments on the difficulty of the material being used or in how the lectures were structured. Students responding to the questionnaire with concerns about time limit: "Maybe we can be given a little more time to think about our answer to the question. 5 min for per question is a little short" and "Not all of the words [have the] same meaning and timing to use it. Sometimes we need to think about of why it was used it for purpose". Others still expressed their frustrations with vocabulary or presentation of the material "I think we need to share roughly what words mean in order to discuss them" and "I thought [the teacher] should add more explanations about the word 'no sense'" with one particular student being very direct with their request to "Refine your explanation to make it easier to understand". Their frustrations and challenges are fair and have been noted for future implementation. I do, however, feel some encouragement from one student who appeared to understand the core of the project's attempted goal: "If a word cannot be translated, think about what it means on your own." While I wouldn't quite have worded in this way the need to continue outside research and problem solving for comprehension purposes, the student's acknowledgments are nevertheless welcome.

Conclusion

Concerns from the instructor end of this project largely revolve around student skill level and motivation, particularly as the material being used is quite complex for students who have not yet made substantial gains in the target language. While the theory was that exposure to nonsense verse and generally lighter themed children's poetry would allow them to focus more on the themes of the readings without concerning themselves with constant vocabulary checking (either mentally or by using dictionaries and other tools), a solid basic foundation of language ability remains essential for engagement.

I have found upon reflection that a project-based end goal may be the most suitable application of the material. This may take the form of reading journals where students analyze a selection of the readings covered over the semester or a critical analysis in the form of an essay or presentation. It has been suggested before – in the vein of Hanauer – that a creative writing exercise based on this project may be beneficial in some way. Indeed, I have attempted this before to mixed effect. While creative writing has not been the primary focus of this particular study, it nevertheless holds a good deal of potential. As per the work of Garvin (2013): "As a second language teaching methodology, this type of creative writing establishes a unique space for personal and cultural identity negotiation as well as second language development" (p. 92). The crux of Garvin's study was in actively writing in a poetic form to explore personal and national identity with the additional benefit of increased mastery of the target language. As for the applicability of this practice with nonsense verse, additional experimentation is needed.

Classes prior to the present study have lightly experimented with writing response poetry in a similar vein to the original. For example, among the post-reading questions included in our "Jabberwocky" reading packet, students were given the task to "Re-write the poem replacing the nonsense words with something that makes sense. Do you think your version carries the same weight as the original? Is it more clear or understandable?". Unfortunately, students misunderstood the request to submit a re-worded version of the poem using legible, existing English vocabulary, instead latching on to the second part of the exercise providing what they believe would be the result of such an activity. One student, without providing the re-written poem as requested, answered the question on the perception of such an activity by saying "I consider it to carry no more weight than the original statement. But, I think it's understandable." While this student and their peers misunderstood the intent of the exercise, they did in a roundabout way recognize what makes nonsense verse so valuable: its sheer audacious whimsy.

The primary goal of this project has been to allow students to explore topics outside of the more standardized, commercial textbooks. Through these readings and discussions, students have been exposed to a variety of vocabulary (invented or otherwise) that they would have otherwise likely never encountered through standard means. An additional benefit is in the opportunity for students to absorb cultural knowledge and other perspectives as they continue in their college careers and beyond. Using and experimenting with non-standard vocabulary remains invaluable from a humanities perspective. Regardless the importance of STEM-based learning and practices for technological and economic purposes, the importance of exploring the human spirit – particularly where things do not seem to make sense from any angle – is no trifling matter, indeed.

Appendix A

Pre and Post Reading Exercises for Lear and Carroll

<u>Edward Lear</u>
"How Pleasant to Know Mr. Lear"

Pre-Reading Task: Vocabulary
You are going to read a poem from the British lyrical poet Edward Lear called "How Pleasant to Know Mr. Lear". Here are some words from the poem. What do the words mean?

Queer
Fastidious
Visage
Runcible
Pilgrimage

Pre-Reading Questions: Self-Descriptions
- How would you describe yourself?
- What is your greatest quirk? The weirdest thing about yourself?
- How would you feel if someone you just met told you all of their weirdest habits?
- Who is the strangest person you know? What makes them strange? How do you feel about that person?
- Would you rather be strange or normal? Why?

Post-Reading Questions
- How does the poem describe the poet?
- Do you like this poem? Why/why not?
- Why do you think Mr. Lear describes himself this way?
- Do you think this description gives you an effective understanding of the poet? Why/why not?
- At the end, the poem gets a little dark and gloomy as it speaks to the poet's inevitable death. Why do you suppose that is?

Extra Task
- This poem is an absurd autobiography. What can we learn about the poet through this reading? Can we take any of it as truth?
- Lear suffered from occasional bouts of melancholy, but he wrote in comical absurdity. How do we reconcile the two? Are melancholy and humor related? Can you have one without the other?
- Do you think absurdity is an effective way of self-description? How would you describe yourself in an absurd manner?
- Have you ever met anyone who matches Lear's description of himself (either physically or in personality)? In what ways are they similar? What do you think of this person?

<u>Edward Lear</u>
"The Owl and the Pussy Cat"

Pre-Reading Task: Vocabulary
You are going to read a children's poem from the British lyrical poet Edward Lear called "The Owl and the Pussy Cat". Here are some words from the poem. What do the words mean?

Elegant
Charming
Tarry
Dine
Mince

Pre-Reading Questions: Love & Marriage
- What are your thoughts on marriage? Why do people get married? Do you want to get married one day?
- What is the appropriate age to get married?
- How long should you date someone before deciding to get married?
- Why do people sometimes wait a long time (years) before getting married?
- What are the differences between western style weddings & Japanese weddings?
- What would make someone the perfect spouse for you? What qualities would they have?

Post-Reading Questions
- Do you like this poem? Why or why not?
- What do you think about the romance between the two animal characters? Is it identifiable? Unrealistic?
- Does this poem have a deeper underlying meaning? Or is it simply a straightforward children's story?
- What kind of person do you think each animal represents?
- Children have enjoyed this story for nearly 150 years. Why do you think it's so popular?

Extra Task
 "The Owl and the Pussy Cat" does have an unfinished sequel. Portions of this sequel, "The Children of the Owl and the Pussy-cat" were published first after Lear's death, in 1938. The children are part fowl and part cat, and love to eat mice.

The family live by places with strange names. The Cat dies, falling from a tall tree, making the Owl become a single parent. The death causes the Owl great sadness. The money is all spent, but the Owl still sings to the original guitar.

Because this sequel is unfinished, I'd like you to finish it. Write a sequel to "The Owl and the Pussy Cat" telling us what happens to the characters in the future (you don't need to follow Lear's original ideas). Do you think your version carries the same weight as the original? Is it more clear or understandable? How is it different? How is it the same?

<u>Edward Lear</u>
"The Jumblies"

Pre-Reading Task: Vocabulary
You are going to read a children's poem from the British lyrical poet Edward Lear called "The Jumblies". Here are some words from the poem. What do the words mean?

Sieve
Sail
Voyage
Crockery
Warble

Pre-Reading Questions: Adventure Time
- What kind of adventures have you been on? Tell me about your most interesting one.
- What is the farthest, most interesting place you want to go to?
- What is some of the best advice you have received?
- What advice have you ignored? How has it affected you?

Post-Reading Questions
- Who are the Jumblies? What do they represent?
- Why did the townspeople try to dissuade them from going?
- Why do you think they went anyway?
- Was it ultimately the right decision?
- What does this poem say about advice and stubbornness?
- What does it say about the spirit of adventure?

Extra Task
- Do you like the poem? Why/why not?
- What does this poem have to say about the human experience? Do you agree or disagree?
- Having read the poem, how do you feel about your own future travel plans/hopes?
- How does the poem's nonsensical nature affect your reading of it?

<u>Lewis Carroll</u>
"Jabberwocky"

Pre-Reading Task: Vocabulary
You are going to read a poem from the British poet Lewis Carroll called "Jabberwocky". Here are some words from the poem. What do the words mean?

Brillig
Mimsey
Frumious
Manxome
Gallumph

Pre-Reading Questions: Epic Nonsense

- What part of language is the most confusing to you? How do you react when encounter a new vocabulary word you don't know?
- Define "epic." What stories come to mind when you think of this term?
- What are your thoughts about fairy tales and children's stories? What are your favorites?
- Why are children fascinated with these stories?

Post-Reading Questions
- Do you like this poem? Why or why not?
- Why did Carroll write his poetry in nonsense verse? What effect does it have?
- What is the Jabberwocky? Why did the hero of the story need to slay it?
- What do you think some of the nonsense words mean?
- Why do you think this poem is so popular among readers (especially children)?
- Does this poem fit your image of an "epic" story?

Extra Task
Re-write the poem replacing the nonsense words with something that makes sense.
- Do you think your version carries the same weight as the original? Is it more clear or understandable?
- How is it different? How is it the same?

Appendix B

Nonsense Verse Questionnaire

Vocabulary
Responses:
- This is definitely common in English
- This is probably common in English
- This is probably nonsense
- This is definitely nonsense

Terms:
Runcible
Galumph
Mince
Tarry
Manxome
Warble
Pilgrimage
Frumious
Crockery
Mimsey

Challenges in Language Learning
Tell me briefly about any challenges you face when studying/using a second language.
Which of the nonsense poems did you understand well? (you may choose more than one)
Which of the nonsense poems did you enjoy the most? (you may choose more than one)
Which of the nonsense poems did you feel were most useful to your language studies? (you may choose more than one)

Comprehension & Interpretation
What is "How Pleasant to Know Mr. Lear about? (choose the answer you believe to be most true)
- Mr. Lear is a friendly, charming gentleman
- Mr. Lear is an ugly, weird guy
- Mr. Lear is probably going to die soon
- Mr. Lear is everyone's friend
- He is different from most people, and picky

What is "The Owl and the Pussy Cat" about? (choose the answer you believe to be most true)
- Society has forced the two characters to leave & find their own way
- Carpe Diem (seize the day). When you have the chance to build your life, you should take it
- Building connections & making friends (they meet the pic and turkey & have a party)
- It is a simple love story

What is "The Jumblies" about? (choose the answer you believe to be most true)
- Ignore the critics and do what your heart desires
- Man's nature is to go on grand adventures to new lands

- Self-confidence and taking action will grant rewards
- Your success will make others envious and want to follow your example

What is "Jabberwocky" about? (choose the answer you believe to be most true)
- Nature is full of indescribable beasts & monsters
- The hero's journey involves leaving home to face a challenge
- Those who take great risks are met with great rewards
- The actions of man are inconsequential (nature always returns to normal)

Student Feedback to the Text
Rank the statements on a scale from 1 – 5; 1 = strongly disagree, 5 = strongly agree

Reading these poems was worthwhile as a student.

Reading these poems helped me to reflect on philosophical perspectives.

These poems are relevant to my life.

Discussing these poems was useful for practicing language skills.

Nonsense verse is valuable from an academic perspective.

Briefly explain your answer to the above question. What value do you think nonsense verse has?

What changes do you think should be made in our approach to teaching/discussing these or other poems?

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Teacher Identity Construction:
A Narrative Inquiry Into English Postgraduate Student Teachers

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Abstract

Teaching is a complex activity that needs a long-term process for shaping the identity of the teacher. This study explores the process by which English learning experiences have shaped the identities of two postgraduate student-teachers. A narrative case study approach was conducted through personal narratives written by the writer and a semi-structured interview with the participant. These narratives encompassed our reflections on various "significant moments" that pointed to three major themes: *becoming a teacher, a teacher's beliefs and knowledge, and professional teacher identity transformation*. The findings revealed that teacher identity involves comprehending the interaction between a complex and dynamic system of personal and social elements. The construction of a teacher's identity not only includes personal knowledge and behavior but is also influenced by ideological, political, cultural, and teaching interests and conditions. In addition, a teacher education program plays an essential role in that process. It provides general pedagogical, technical, and educational skills that are vital for the teaching profession.

Keywords: EFL, Narrative Inquiry, Teacher Identity Construction

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Introduction

Teaching is inevitably a complex activity as it concerns the teacher's entire person (Cochran-Smith, 2005). Teachers have to build personal and professional knowledge, develop a teacher's sense, and negotiate cultural and contextual concepts that shape teaching. As put by Reeves (2018), constructing and developing teachers' identities is a lifetime process. Its development is affected by various factors, including personal and professional experiences and the current context of teaching (Aghaei, Bavali, & Behjat, 2020; Olsen, 2008). Teachers usually construct their conceptual self-image through their professional role identity (Farrell, 2011). The process of identity construction occurs among complex systems (Henry, 2019) characterized by tensions and the struggle of different relations (Beauchamp & Thomas, 2009; Beijaard, Meijer, & Verloop, 2004). It also comes from a complicated cognitive aspect, which comprises what the teachers know, believes, and think (Borg, 2006). Research shows that a teacher develops teaching and learning preconceptions from his/her experience as a learner (Borg, 2004; Han, 2016; Malderez, Hobson, Tracey, & Kerr, 2007). Those preconceptions are the primary source of the teachers' beliefs and experiences that influence their teaching practice.

In language teaching, Varghese, Morgan, Johnston, and Johnson (2005, p. 22) have argued that "in order to understand language teaching and learning we need to understand teachers: the professional, cultural, political, and individual identities which they claim or which are assigned to them." Teaching and teacher education is inherently political since it involves negotiating conflicting values on educational purposes, roles, and content (Cochran-Smith, 2005). Research into the identity of English language teachers is an interesting area that puts identity and discourse at the core of language teaching and learning (Miller, 2009). Most of the recent literature on teacher identity formation mainly focused on novice teachers, both native and non-native English-speaking teachers (e.g., Johnston, 2003; Villegas, Varona, & Sánchez, 2020; Salinas & Ayala, 2018; Sarasa, 2016; Simon-Maeda, 2004; Varghese et al., 2005; Zhang & Zhang, 2018). However, teacher identity construction of experienced postgraduate English student-teachers has not yet received the same attention. Acknowledging teacher identity construction is essential to support experienced language teachers in their work since these formations are integral for their beliefs, assumptions, values, and practices that guide teacher acts both in and out of the classroom. Therefore, this study attempts to fill the gap and investigates foreign language teachers' identity construction manifested in two experienced female EFL student-teachers. It aims to answer the question "How do English learning experiences shape Indonesian postgraduate student-teacher identity?"

The Concept of Identity

Beauchamp and Thomas (2009) and Beijaard et al. (2004) point out that identity is rarely correctly defined. However, most researchers appear to agree that identity is an ongoing, dynamic process. Wenger's (1998) social identity theoretical approach contributes to identity research and investigates identity-building as a learning experience. Wenger views identity as social involvement in a community of practice. He defines identity as "a layering of events of participation and reification by which our experience and its social interpretation inform each other" (Wenger, 1998, p. 151). Likewise, Sachs (2005) notes that teacher identity provides the framework for teachers to build up their own conceptions about "how to be" and "how to act" in society. Sachs highlights the mutual nature of identity to negotiate experiences and to make them meaningful. Identity then can be described as an ongoing process of social

experience, how we perceive these experiences and how we build the meaning of our experience.

Teacher Identity Construction

Student teachers experience a changing identity from the very beginning of their education as they start taking over more duties and positions as actual teachers in their study and traineeship. Britzman (2003) argues that a teacher's identity is constructed as part of learning to teach. This process usually begins when students choose to teach as a professional choice, although they already have a firm idea of the meaning of teaching from their learning experience. This identity of a teacher is inherent in the concept of 'Who am I?' and 'Who you are?' which has been influenced by various internal factors, such as emotions (Rodgers & Scott, 2008) and external factors, such as life experience (Flores & Day, 2006). It is built from a social and personal perspective during the socio-cultural process (Beauchamp & Thomas, 2009; J. Johnston, 2012; Miller, 2009). From a social perspective, teacher identity construction includes the influences of contexts and traditions, experiences, social interactions, and positions (Beauchamp & Thomas, 2009; Coldron & Smith, 1999; Kelly, 2006; Miller, 2009). While from a personal perspective, its construction comprises agency, emotions, and systems of meaning and self-construction (Beauchamp & Thomas, 2009; Beijaard et al., 2004). Emotions are not only seen as psychological expressions; they are also built and managed socially. Teacher identity construction entails intra- and inter-personal processes (Kaplan & Garner, 2017). As the formation of teacher identity is a complex process, it involves asking why, when, and how identities arise (Henry, 2019). Simply put, the teacher identity involves various multifaceted aspects, and if viewed from one perspective, it would cause limited understanding.

Teacher identity emerges in a teacher community as a process of participation and interaction. Although other forms of participation can occur, engagement, alignment, and imagination are three significant distinct modes of identification (Wenger, 2010). Wenger argues that engagement is related to practice. It entails participating in what is done and in relations with other community members. It provides an experience in understanding who a teacher is, how a teacher participates in activities, and what skills are necessary. However, teachers are not simply involved within the physical borders of communities. They are also part of wider professional networks, which is defined as alignment. Meanwhile, imagination is a personal and social activity. It enables teachers to disconnect and examine the community as an outsider, take chances, explore new ideas, and engage in a new involvement process (Wenger, 1998, 2010).

Kelchtermans (1993) identified five aspects that allow teachers to understand their professional identity. First, self-image shows how an individual describes oneself as a teacher. Self-description statements could be conveyed as general principles that regulate the professional behavior of the teachers, or they may refer to how colleagues or parents perceive the teachers. Second, self-esteem is closely linked with the appreciation and evaluation of oneself as a teacher. It is connected and led by comparisons with others and can therefore be defined by balancing self-images and professional standards. The third aspect of identity is job motivation. It includes motivation to join and continue to stay in teaching. Fourth, task perception shows how teachers define their job. There is a vital role in the quality of the relationships with pupils and discursive skills. However, cooperation and self-interpretation of class behavior are essential features related to task perception. The last aspect is a future

perspective or future dimension in the professional self of teachers. It encompasses teachers' expectations of and how they feel about the future evolution of their work situation.

Language Teacher Identity

The identity of the teacher is critical in determining how language is taught. Teachers implement their teaching practices, beliefs, attitudes, and perceptions through their identities, affecting students' learning through the class atmosphere and teaching methods (Varghese et al., 2005). Beauchamp and Thomas (2009) stated that teacher identity development encompasses an understanding of the self and self-concept in an external context (i.e., a classroom or a school) that requires self-examination with others. They argue that the teacher's identity is shaped and transformed by professional relationships with others. Similarly, Martel and Wang (2015) explain that interactions with significant people, personal biographies, and individual contexts significantly influence language teacher identity construction. Teachers could imply different roles in different contexts, situations, and environments. Sometimes these roles may be distant; sometimes, they may overlap. A language teacher could even play some of the roles simultaneously, depending on the circumstances in each educational context. Farrell (2011) stated that language teacher roles could be divided into ready-made roles (i.e., teacher as a caregiver, entertainer) or individually-created roles (teacher as a collaborator, learner, knowledgeable). Teachers can formulate these roles through their memoirs, stories or journals while sharing their teaching landscapes with others.

Methods

The present study is a narrative case study (Clandinin & Rosiek, 2007) that explores how two Indonesian postgraduate English student-teachers construct their teacher identities through learning experiences. As this study involves my learning experience as the data, the narrative inquiry may help me readdress my experiences and understand them (Tran, 2019). I took part in the study with my friend (Mia, a woman, pseudonym). By the time of the study, we were in the second semester of the postgraduate program. The participant's selection was based on the differences in teaching experience in school. While Mia has been teaching for more than ten years, I have been teaching for more than five years. Mia taught in a formal school, while I taught in a non-formal institution. I also chose a participant who was willing to get involved in this study.

Personal narratives and a semi-structured were held to collect the stories of the participants and my experiences related to teacher identity construction. In my narratives, I wrote several significant moments on how I learned and taught English. Then in an interview, rather than using a formal interview, I chose to conduct an interactive consisting of open-ended questions to make the participant comfortable telling her story. In addition, it enables the participants to describe their experiences and feelings (Seidman, 2006; Trahar, 2009). The interview lasted approximately two hours with zoom video conferences. The original interview guide consisted of 18 questions, all concerning the formation of teacher identity. Several questions were adapted from Gu and Benson (2015), and the rest were developed based on the conclusion and implications of the literature used in this study. All eighteen questions were asked in a semi-structured interview format. However, the order was changed, and there were further questions or discussions based on her answers.

During the interview, I listened to her own words and perspectives on her stories. I recorded these conversations and transcribed them. I went into specific topics further after reading and living with these transcriptions. Data analysis has been used to examine teacher identity formation at different stages in our careers in two student teachers and investigated which characteristics and experiences define us as teachers. Data analysis aims to identify narrative similarities and differences and to explore teachers' views, influences, and experiences in learning English. In order to ensure the trustworthiness (Gill, Gill, & Roulet, 2017) and verification of the interview data and minimize the interpretation in the final report, I reaffirmed the transcripts and the analysis of the stories to the participants to get her feedback and comments whether or not they were appropriate with her answer.

Findings

In these narratives, I identified similar patterns that have shaped our student teacher's identities. Through my reflection and Mia's stories, the teaching formation process is framed in three categories: becoming a teacher, teachers' beliefs and knowledge, and professional teacher identity transformation. The first category has two dimensions: the role of families and former teachers, which has implications for the shift of my identity and Mia's.

Becoming a Teacher

Role of families

Families have seemed to shape the professional choices of student teachers in various ways, including implicit approval, expressed support and sometimes disagreement and discouragement (Clarke, 2008). The data identify the encouragement of family members who had been a teacher as some of the most recurring links between family and language-teacher decisions. The following two excerpts from Mia and I are representative:

> I was once admitted into university through a special merit-based admission process called PMDK and passed it. But I did not take it because my parents said it was too far from home, and they thought it would be hard to find a job after college. They allowed me to go to college if I graduated right away to be a civil servant, e.g., The State College of Accountancy. I followed my parents' advice but did not pass. Then my parents suggested I take a course in college with an education course in my town. (Mia)

> I grew up in a teacher's family, including my father, brothers, and sisters; yet, they were not the ones who inspired me to become a teacher. Eventually, when I was in the last semester of undergraduate study, my father once asked me what to do after graduation, and he suggested I become a teacher. (Khusna)

In the first excerpt, Mia explained in the entry interview why she had for choosing to teach. Her parents played a promising role, even if later she acknowledged it to be her 'decision' and clarified it as having no regrets. Mia told me that she never dreamed of being a teacher, although her aunt, uncle, and cousin are teachers. Rather than going to college, she chose to be a tailor to help her parents. However, as most of her family are teachers, her parents asked her to follow them.

Similarly, since most of my family members are teachers, at last, my parents asked me to follow them. He said to me that it was a good profession. Although actually, the act of becoming a teacher began for me sometime before I graduate. I found that teaching is challenging yet intriguing when I teach during my college, and it made me want to learn how to be a teacher. Nevertheless, the repeated explicit advice about the professional benefits of teaching from Mia's parents and mine might have influenced our choice.

Role of teachers

The data revealed the influence of our former teachers on our decisions about choosing to teach. The connection between past learning experiences and the desire to become a teacher appeared strong. It is apparent from the data that teachers provided models to either imitate or surpass. What teachers did as a result of their daily practice, behavior, or subject knowledge, for example, seemed to have impacted our aspirations on teaching either positively or negatively. The following extracts illustrate a good and bad model that played an influential role when the decision to become a teacher was made.

> I chose English because my English teacher in junior high school inspired me. He was very good at teaching; he loved to sing in class. Then, when I was in my senior year, my English teacher always invited the students to practice speaking. We always learned at the language laboratory. (Mia)

> When I was in junior year, I was taught by a teacher who joked over the dirty words in the class. His teaching sessions were often missed for half, and he gave assignments without any feedback. It all seemed to me that he was an indolent teacher. All the things that he could do were about joking. I thought he did not care about planning a good lesson. He looked down at his students sometimes as well. I had a turn one day to read out loud a paragraph. Since I was nervous about speaking loudly in front of all my friends, I did not realize I read fast. After I finished reading, my teacher quickly imitated me, which made all the students laugh. I was so embarrassed that I wanted to leave the class. It made me hate the teacher, but it also made me think that I would never be like him if someday I become a teacher. I will encourage students to try and appreciate their effort, even though it is wrong. (Khusna)

Mia showed how teachers had inspired her to choose language teaching. From the data, she realized her motivation for foreign languages emerged due to her former teachers. Not only did Mia show a strong sense of inspiration, but she also found the origin of her interest in English. Her teachers' image of subject knowledge and language skills revealed additional reasons for her alignment with foreign languages.

On the other hand, I reflected on a model of teaching that was not inspiring. I highlighted important considerations regarding the role of the teachers from the reflection. Their responsibilities and their professional engagement became my attention. It is evident that teaching requires both pedagogical knowledge and professional development as well as the commitment of teachers. These brought me to conform with a fundamentally critical social and ethical sense of teaching.

This section demonstrated how families and previous teachers played the role of teacher identity construction. It shows how relatives and inspiring teaching models directly

influenced the student teachers' decisions about becoming language teachers. Although affection and tenderness, class participation, and learning opportunities were immediately understood to be critical features, another teaching model was dismissed because of the professional lack of engagement of the teacher. Briefly, the results reveal that inspirational and uninspiring models are provided by teachers who seem to affect the choices of postgraduate student teachers about teaching.

Teachers' Belief and Knowledge

The process of constructing a teacher's identity can be manifested in teachers' systems of beliefs and knowledge. The student teachers' beliefs in this section discuss how their classroom practice is manifested. Teachers often encounter many problematic situations such as students' behavior, workload, curriculum adjustment, or teaching facilities to perform their job. This challenges teachers to maintain their professionalism while demonstrating their emotional ability. How teachers control their emotions keeps them committed and optimal in teaching. It is illustrated in the following excerpts:

> As I teach students in a rural school with no internet access, I found it is not easy to teach students using media-based internet to learn English…. And they do not have English exposure either in primary school or in their daily environment. To cope with these challenges, I have adjusted the media that is properly suitable for the conditions there {her school}. Because I like scouts, I sometimes use scout games to avoid monotony. (Mia)

As we can see, in order to enhance students' understanding and enjoyment, Mia demonstrated an explicit knowledge of the use of the available learning media resources. These fundamental principles in Mia's pedagogical knowledge of the subject provide a thorough understanding of the role of teachers in the language classroom. While Mia encountered constraints related to teaching facilities, I found problems regarding pedagogical knowledge.

> When I am explaining a material, my student asked me which I forgot the correct answer. I answered it a bit hesitantly. So, he said, "You know nothing, right?" with a sarcastic smile. At that moment, I knew he asked the question to test me. Usually, if I am unsure of a possible explanation for an answer, I say, "I will check it later". Then I will confirm the correct answer at the next meeting. Instead of lying or pretending to know the answer, I chose to tell the truth. (Khusna)

If Mia reflected as a knowledgeable teacher who was full of creativity, I found myself an unknowledgeable teacher who could not teach due to my cluelessness. When my student looked down on my ability, I thought, "Do I deserve to be a teacher?" However, I believed that my decision to honestly tell rather than pretend to know the answer was correct since I emphasized students' character in my classroom. Those conflicting situations made me more aware that I need to learn more in order to be a good teacher to my students.

Talking about students' behavior in the classroom, Mia commented on an obstacle she encountered when first beginning to be involved in the teaching profession. She recalled that she met with a teasing student when she was teaching in a senior high school by sending a private message.

> So, I used to reply to the chat because I think he is my student, of course with the portion of the teacher-student. Then, when I went to the cafeteria, one of the sellers in the canteen asked, "Do you like to chat with Indra?" I said yes because it was a fact. Perhaps the student enjoys telling his friends that he often chats with me in "another" context. But actually, I positioned the teacher to the students only. Well, from there, I began to realize to be more careful. (Mia)

As a novice teacher at that time, she had to position herself as a teacher and friend. She affirmed, "Afterward, there were even some students who were like Indra (send a private chat) because maybe at that time they thought their age was not so far, another 5-6 years with me." This kind of student behavior became another conflicting situation regarding how teachers should behave. She believed that a teacher needed to build the relation outside of the classroom, not only in an academic context. As Kusmaryani et al., (2018) suggested, teachers' services cannot be separated from social interaction by educating, teaching, directing, guiding, training, assessing, and evaluating students. Therefore, she assumed that facilitating students to ask questions outside the classroom is one of the teacher's roles.

However, both Mia and I agreed that teaching is a dynamic profession. Sometimes we laugh at the students' actions, and sometimes also annoyed by their actions. If there is a saying that being a teacher makes us young, that is true. Because every day, there is something that keeps us young. Mia even said that being with children made her happy. She further said the children's world affects her aura and mood in daily life.

This section offers significant insights into the teaching beliefs and knowledge of postgraduate student teachers. Knowledge and pedagogy of subject matter may have been aligned in classroom practices coherently and incongruously. While Mia experienced professional inclusion and acknowledgement, exclusion also existed. I also reported a dual sense of mutual involvement when my student judges and evaluates me and explains my poor performance in the class during my teaching. This finding can help us understand how teaching identity emerges from an interplay between experience, cognition, emotion, and meaning-making.

Professional Teacher Identity Transformation

It is believed that becoming a teacher comprises a participation trajectory in which practice is essential. The teachers' professional identity, on the other hand, was developed as a result of a long training period which may start at the beginning of their learning experience. Thus, this section explores how the learning experience transforms the professional teacher identity of postgraduate student-teachers.

Mia discussed how she perceived English for the first time. At first, he felt that learning English was commonplace. After entering postgraduate studies, she found it is a liability to learn English as a student as well as a teacher. Mia expressed, "I think if it is called 'love English'…. many other areas are more pleasant for me." However, Mia thought that learning English had many impacts on her individually, academically, and professionally. She shared a lesson that she learned in postgraduate studies:

> Previously, I thought students should be given tasks and homework to understand the subject material. After entering the postgraduate program, I feel that it was not wise to provide the students with many tasks, especially if the assignment was beyond their

burden. Therefore, I am more relaxed and less demanding about my teaching now. I am also inspired by one of my lecturers, who use the scaffolding method during the learning process. (Mia)

She elucidated:

> There is a time when I want to travel. The impact of learning English makes me wish to explore further the outside world. I wish to be able to learn the language of a country of origin. Although a postgraduate program is not so influential for my promotion or position, I was motivated to continue my studies because I felt saturated with my work; I felt... I have to go to school again to expand my knowledge and skills. (Mia)

Mia also shared that when getting a teaching job for the first time. She felt she lacked pedagogical skills and realized she had a lot to learn about how to deal with the students in the class. Mia added that she put more emphasis on the character, spirituality, and social nature of the students since it is crucial in their daily lives. While Mia learned English as a commonplace, I considered it interesting since I enjoyed English lessons from primary school, which influenced my teaching practice.

> In my undergraduate study, I tried to get a part-time job in college by teaching English. Perhaps it was the only job I could be good at. By teaching from one institution to another, I realized that I love being a teacher. The opportunity to be in various classrooms at different grade levels exposed me to multiple teaching styles and personalities. I could not teach all my students in the same style. I had to dwell on what methods I could use and be effective for some students. While teaching, I considered several media and methods that I learned in my studies. Sometimes I had to adjust certain strategies until I obtained the best approach for my students. Therefore, I joined various teachers' training and community in order to learn from diverse perspectives. (Khusna)

From the data, Mia and I illustrate how learning practice impacted our sense of professional development. There is a clear connection between our learning experience and our professional representation. The findings involve diverse ways of negotiated interaction and involvement with several professional communities that play an essential role in constructing, retaining, or transforming student teachers' professional identities.

Discussion

It is suggested that teachers acquire a new identity due to their experience in learning to teach. This identity is formed or transformed by participating in a teacher community, developing teaching skills and competencies, and engaging in professional development, which is essential for comprehending how student-teachers shaped the teacher's meaning. While studied independently, these three elements have inter-relationships. For instance, the development of teaching abilities is linked to past learning experiences, teaching knowledge, and involvement in a teachers' community (Cochran-Smith & Lytle, 1999).

This study examines the teacher identity of two Indonesian postgraduate student teachers, who are closely socially cultural but distinguished in the learning experience. It explores how they enact their teaching identity, reflect on their identity and construct their learning

knowledge during their learning experiences. This study focuses on developing teacher identity and reflects Britzman's (2003) notion that learning to teach is a time of dynamic tension between the past, the present, and the future. It is "the process of becoming: a time of formation and transformation, of scrutiny into what one is doing, and who one can become" (Britzman, 2003, p.31).

Becoming a teacher is a tough and challenging task. The process of building the meaning of teaching involves strengths of commitment, motivation, and professional development. As we see in both stories, the two student-teachers force their knowledge to become good teachers by studying for a postgraduate program. The teacher identity construction provided by participants entails a relationship between individuals and socials as other studies on English teacher identity (e.g., Clarke, 2008; Gu & Benson, 2015; Li, 2020; Tsui, 2007). In the construction of postgraduate student-teacher, reflection, relationships with students, emotional involvement, and teacher knowledge building work together, influence each other, and shape meanings and practices in all aspects. The determining factors are integrated into the identity construction process.

It was revealed that the participant and I choose teaching based on an implicit or explicit approach to families and prior teachers as well as our interest in learning foreign languages. These findings reflected Clarke (2008), who said that families and teachers play a crucial role in choosing to teach. Whether we remarked that teaching was our first choice, we realized that our families played a particular role by suggesting that teaching is the best option. Although the part of teachers as positive and negative role models relates not to any specific pedagogical subject but to teaching itself (Clarke, 2008), a student's admiration and a negative image of prior teachers become a part of constructing our teacher identities.

The teacher identity of the participants of this study is based on certain beliefs in the reflection of early studies (Au & Blake, 2003; Beijaard et al., 2004; Clarke, 2008). The results indicate that our knowledge and belief systems were crucial to foreign language teaching. It has gained significant insights, including the belief that English teachers need to adopt proper teaching practices. Although it was not entirely what the teacher did at the school, we were conscious of the need to offer additional learning alternatives. The current data suggested that beliefs and practice in the classroom may not always correlate, and it was aligned with the previous findings (i.e., L. Li & Walsh, 2011; Petek, 2013; Phipps & Borg, 2009). However, we did not judge if our beliefs on the pedagogical issues are true; we merely investigated how beliefs construct our professional identity because it is commonly recognized that beliefs influence professional practice and resist change (Peacock, 2001).

In the process of building a professional identity, practice often plays a significant role. In general, the data reveal a good alignment with the teaching profession reflected in our desire to pursue our education, visit an English-speaking country, and enhance our skills and teaching competence. As Wenger (1998) stated, our teaching identities evolve as we experience ourselves through our involvement and the conceptualization of self and others. Although we were not in an early stage of our profession, the findings provided an important insight into the enormous impact of our initial learning experience on our professional development. This impact could be seen in our desire for further study or involvement in the teachers' community to improve our quality.

Conclusion

In this study, three interwoven fields were discussed to assist us in understanding how student teachers construct teacher identity. They were becoming teachers, teachers' beliefs and knowledge in classroom practice, and the transformation of professional identity. First, the study revealed the importance of families' and teachers' roles in developing, supporting, and transforming teacher identity. Secondly, the findings showed two different situations concerning the student teacher's belief and knowledge in classroom practice. Although there had been notable instances of consistency between beliefs and classroom behaviour, incongruent correlations had been shown. The study concluded that the learning experience (learn to teach) significantly impacted the teacher identity construction of postgraduate student-teachers in two different ways: alignment and resistance to the teaching profession.

The findings in this study contribute significantly to the continuing discussion on how teachers embrace a new identity. It is believed that teachers construct their identity as a result of the experience of learning to teach. This process develops long-term by involving several activities such as participating in broader teacher communities, developing teaching skills and taking professional development. While the learning to teach is shaped and experienced individually, it is negotiated socially. The construction of a teacher's identity not only includes personal knowledge and behaviour but is also influenced by ideological, political, cultural and teaching interests and conditions. However, a teacher education program plays a significant part in this process. It gives general pedagogical and subject knowledge and teaching experience, all of which are considered key to the teaching profession. In a nutshell, teacher identity, as indicated in the findings, involves comprehending the interaction between a complex and dynamic system of personal and social elements.

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Choices Student-Athlete Made in Education & Future Career Aspiration: A Qualitative Study in Indonesia

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Abstract

Indonesia has a special national education policy concerning students with notable talents in which they are entitled to special coaching to develop their abilities. However, the implementation of this special program for sport-talented students is limited to cover up to high school age with little attention being put on the older students in higher education. This study focuses on Indonesian talented university student-athletes to explore what was facilitating or hindering factors in making education and future career decisions. Interviews with 6 participants, an international award-winning martial arts aged 20-24 years old, provided in-depth descriptions of participants' personal experiences. They clearly stated what and how they wanted to achieve in sports settings and their general education and career attainment. When making career choices, talented student-athletes valued intrinsic motivation, the opportunity for self-development and expanding social networks, and also the support received from their close relatives of which all these factors become the reason why they are excellent in sports. However, this study portrays the challenges faced by these students as the field of sports itself is often discounted not as the primary option for their future careers. The lack of suitable education to pursue sport as a professional field of career, lack of opportunity for the field itself for a life-long career path, and the presence of other available options of career choice were often mentioned as the hindering factors. Some implications are also given.

Keyword: University Student-Athlete, Career Aspiration, Career Decision Making, Qualitative Study, Indonesian Sport Achievement, Sport Talented Student

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INTRODUCTION

Higher education as part of the individual education process is a significant step in the formatting of lifelong learners (UNESCO, n.d.). Education fosters critical thinking skills, helps students become part of an integrated society (Macur, 2020), and achieves future goals (Eriyani et al., 2020). In 2022, there were 4.02 million students (Mahdi, 2022) studying in 122 public universities in Indonesia (Handini et al., 2020). However, only 43 received an outstanding (A) accreditation (Handini et al., 2020). Based on the National Accreditation Board for Higher Education (BAN-PT) Number 1 of 2020, accreditation is a feasibility test for faculties and universities in Indonesia and is carried out every five years, with an A accreditation given as the highest accreditation. With only 35.2% of state universities having the highest accreditation, this indicated that the threshold is high to ensure the quality of education and graduates from A-accredited institutions.

Even so, the quality of education at a university is not the only determining factor in students' decisions to choose a particular university. The quality of a university is supported by other auxiliary resources, such as student academic and extracurricular activities. The availability of extracurricular sports has advantages for students as well. Previous research found that students who actively participate in sports activities have better academic performance (Muñoz-Bullón, Sanchez-Bueno, & Vos-Saz, 2017) and subjective well-being (Baltatescu & Kovacs, 2012). Students who had previously excelled in particular fields can continue to do so because of the availability of extracurricular activities for students.

In Indonesia, students who are talented in sports may enlist in a specialized training program, called the Student Training and Coaching Program (PPLP). At the university level, sports-talented college students can join the College Training and Coaching Program (PPLM) (Dharmadi, 2016). However, as reported by the official website of the Ministry of Youth and Sports (2020), there are only two PPLM training centers in Indonesia, namely in Jakarta and East Java. Furthermore, PPLM only includes five sports (Ministry of Youth and Sports, 2020). The passion and abilities of all students in Indonesia, of course, cannot be accommodated by this program only. College students, who want to continue to succeed in their respective sports fields, will rely on student sports extracurricular programs at their university. These students are present in the Universitas Indonesia Taekwondo Student Extracurricular Club.

Universitas Indonesia (UI) is one of the A-accredited public universities in Indonesia. As the oldest university institution built during colonialism in 1849 (Ayu, 2017), UI has 14 faculties for undergraduate and one vocational program (CNN Indonesia, 2022). Due to UI's excellent standing, entrance to this institution is extremely competitive. In 2022, UI will only accept 7.13% of students from 113,758 applicants (Kasih, 2022; Maudisha, 2022; Purwadi, 2022). This demonstrates that UI's students are intelligent, academically driven people. Nevertheless, some UI students have interests and talents in sports, too. Unfortunately, these students could not continue their passion in this field due to various factors. One of these factors is that sports cannot sustain the life of athletes in Indonesia, as seen from the numerous news stories about former outstanding athletes in Indonesia who do not have jobs after retirement (IDN Times, 2017). Therefore, they chose to focus on academics and use the university's extracurricular activities to satisfy their passion for sports.

Previous qualitative research examined how student-athletes make professional decisions (Seward & Gaesser, 2018; Veldman-de Jonge & Jen, 2022), as well as how student-athletes

make decisions (Wendling & Sagas, 2020). However, researchers have not found a similar study conducted in Indonesia on student-athletes. Therefore, this qualitative research wants to see the factors that influence the career decision-making process of the sports-talented student. In particular, in deciding to continue their education at university and in designing career decisions when they graduate later.

METHODS

Participant

Table 1: Participant's Demographic Characteristics

Source person	Gender	Student at faculty	Year in college	Active time in Taekwondo	Active in	Level of competition
A	Male	Faculty of Math and Science	4th year	12 years	University level club	International & National
B	Male	Faculty of Psychology	4th year	15 years	University level club	International & National
C	Female	Faculty of Social and Political Science	3rd year	14 years	University level club & city level club	International & National
D	Female	Faculty of Math and Science	5th year	11 years	University level club & city level club	International & National
E	Female	Faculty of Social and Political Science	2nd year	9 years	University level club	National
F	Female	Faculty of Psychology	4th year	19 years	University level club & city level club	International & National

Theoretical framework

This study will look at the interaction of various internal and external factors that influence the career decisions of sports-talented undergraduate students. This study will use the Social Cognitive Model of Career Self-Management (CSM) because CSM has been used to discuss problems, planning, and athlete career transitions in previous studies (Demulier et al., 2013; Wendling & Sagas, 2020). Compared to other frameworks, CSM can capture dynamic relationships between social cognitive, environmental, and personality factors that can influence adaptive behavior in career decision-making (Wendling & Sagas, 2020). Therefore, the researcher believes that CSM can answer the research question thoroughly.

Data collection & analysis

Six sports-talented undergraduate students who were active in the Taekwondo club and willing to participate in interviews were used to gather information using semi-structured interviews. All participants were interviewed in one session on a different day within two

weeks. The researchers did a second interview session with the participants after speaking with everyone to probe deeper. Each session lasted 90 - 120 minutes and was carried out by the first and/or second authors via virtual meetings. The participants' answers were immediately transcribed after the meeting based on the recording.

RESULT

Figure 1: Factors behind Student-Athlete's Career & Education Choices
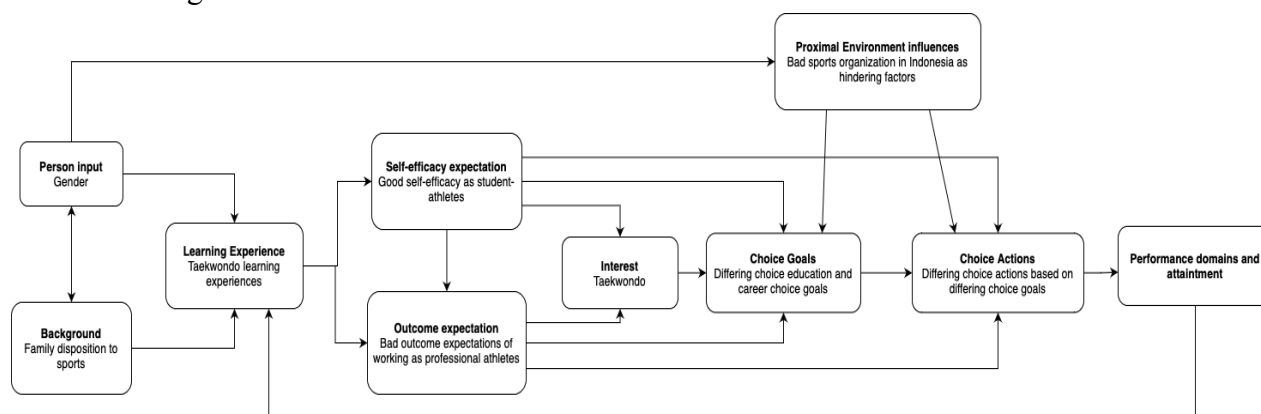
Note: This figure demonstrates the factors that influence and how those factors influence student-athlete's career and education choices

Factors Influencing Career Decision Making

The results of the interviews in this study will be reviewed using the Social Cognitive Model of Career Self-Management (CSM) as follows.

Persons Input & Background

Individual identity and the context in which the individual originates are distal variables that affect individuals from birth (Lent & Brown, 2013). Individuals will be aware of the state of the environment and its abilities so that it influences the beliefs and expectations that individuals build regarding the possibility of completing a task (Gonzales, 2015). One of the sources we interviewed described that gender and the beliefs held by his parents were the main reasons for him to start working in Taekwondo.

> So when I was little, I was encouraged by my parents to start learning Taekwondo because they believed that boys should be able to do martial arts… and for girls, it was optional.… This principle is inherited from the father's family. My father's job as a soldier in the army makes it obligatory for his son to master a martial art skill. So that when facing problems outside the house, we can protect ourselves. (Source person B)

Another student-athlete explained that her grandfather, who was active in other martial arts, made martial arts not a foreign field to her. On the other hand, the informant's gender identity, as a woman, is something that the local community discusses. People feel source person C is not suitable to practice Taekwondo and recommended more feminine sports, such

as dance. Even so, source person C decided to ignore it because both of the informant's parents supported her since she was young, as in the following quote:

> My parents are not active in sports like taekwondo. Only my grandfather participated in Pencak Silat (Indonesia's traditional martial arts)… I did feel there was a stigma about why girls would participate in sports like this. Some say, such as my aunt, that it was better to join something feminine like dancing. But, I did not care about those words because my parents are very supportive. (Source person C)

The aforementioned quotations agree with past studies that indicated the importance of family in athletes' skills development (Portenga, 2019). The likelihood that a person will engage in certain sports can also be influenced by personal traits, as Source Person C that received negative views from those around her demonstrate. Furthermore, individual characteristics can influence which sport to pursue and how long to pursue the sport.

Experience in Establishing Self-efficacy and Outcome Expectations

Self-efficacy refers to an individual's belief in his ability to perform a behavior or complete particular tasks (Bandura, 1982 in MacAfee & Comeau, 2020; Lent & Brown, 2013). Meanwhile, outcome expectations are individual anticipations and beliefs about the physical, affective, and social consequences of their behavior (Fasbender, 2018). Based on the interview results, we found a link between short-term and long-term outcome expectations with different consequence outcome expectations.

In the short-term outcome expectation regarding the impact of Taekwondo, the source persons have a positive consequence outcome expectation. That is, the sources believe that the sport of Taekwondo has a good effect on their development. As in the following quote:

> For example, when I was in middle school, my friends would hang out after school. On the other hand, I had to practice. The same goes for college. After class, people can go home, but I have to practice and prepare for matches… I became more disciplined. I have to be strict in my training, and strict with what I eat so I do not gain weight. I believe the self-control skills transferred to other aspects of my life. (Source person A)

> I do not think that there is a big difference between athletes and non-athletes. But when it comes to me, I think I am braver. It's like if I go through a small road where there are shady people who are scary, I will be braver compared to non-athletes… My friendships also become broader and more diverse. (Source person F)

Furthermore, other interviewees have felt the positive impact of Taekwondo on themselves so they want to promote the sport they participate in so that other people can also experience it. That's why source person A plans to build a fighter school in his hometown. This school is for adolescents aged 12-17 who cannot attend school. Apart from teaching Taekwondo and other martial arts, source person B also wanted to teach basic lessons, such as math, to these adolescents.

> People who participate in martial arts are less easily provoked and are better able to control their behavior when no one else is around. Of course, not all athletes are like that but on average… Time management should also be better because they have to

> practice for matches, but there are still classes or other activities… In the future, I want to make a fighter school… This school will teach self-defense to children who can't go to school… Currently, I'm still alone but I want to take it to the Ministry (Source person B)

However, all interviewees had a bad relationship between long-term outcome expectations and consequence outcome expectations. All student-athletes stated and agreed that the career field as a Taekwondo athlete would not have a good impact on their future based on financial appreciation for Taekwondo athletes and career paths as an athlete in Indonesia.

> Considering future careers come from the athlete's career path. I can not be there forever... So it's better to focus on another career with longer job prospects (Source person A)

> I did not become an athlete because I also need money for my future... I think it is very selfish if I force myself to be an athlete to my family. (Source person B)

Based on the interview, we can see that the relationship between the length of the outcome expectation -short or long term-, and its consequences can vary. Furthermore, some sources show differences in the relationship between outcome expectations and self-efficacy. Source person E had good skills, but the student-athletes also understood sports in Indonesia would not be able to accommodate her skills to the fullest. She drew this conclusion based on her prior experiences. One of these instances was when a veteran athlete who had competed in multinational competitions as a national team member still played in the inter-provincial competition. She considers it to be unfair and evidence of the shortcomings in Indonesian Taekwondo culture. Because of this practice, young athletes have been deprived of the opportunity to grow and learn.

> Yeah, it's not her class anymore... she (the senior athlete) has played in the SEA Games but was still sent down for the provincial level competition... (the coach and the team) want to chase the winning money... Other regions also feel it's unfair. (Source person E)

Additionally, Indonesian sports are still plagued with "politics," which can be detrimental to athletes.

> I was replaced by an athlete who was not as good as me because the coach knew I would not continue as an athlete... Yes, politics exists... Parents can bribe the coach to put their child as an athlete or have private lessons with the coach... Parents bribe like that because XX (province resource person playing) is prestigious so the smaller teams and parents want to send their children to play for XX… Yes, there is a monopoly too. Good teams can monopolize who plays, so small teams want to sell their athletes to big teams. (Source person E)

Experiencing all these instances, the interviewees had bad outcome expectations of their careers as athletes. These different results indicate that good self-efficacy does not promise positive outcome expectations. Athletes' expectations for their performance will be influenced by several other variables, including their career field's capacity to nurture their talents, the culture of the career field, and the career field's ability to maintain their quality of life. Unfortunately, due to improper practices, as reported by our sources, Indonesian sports,

particularly Taekwondo, have not been able to establish a setting that develops the talent of athletes.

Nonetheless, source person E still loves Taekwondo so she adapts so that she can still contribute to that field other than as an athlete. The method chosen by the resource persons is to become a referee and/or coach.

> Financial appreciation nowadays is better for referees or coaches... Referees need good analytical skills and can make decisions in a split second... I have been offered to be a national or national referee because I already meet the qualifications... Yes, I want to continue to become an athlete because there is still no vitality as an athlete in Indonesia… Taekwondo athletes in Indonesia are still few and there are no Taekwondo athletes who can live a prosperous life. (Source person E)

Based on that quote, we can see that source person E realized that financial appreciation as a coach or referee would be better than athletes and showed the outcome expectation as a coach or referee was better. Meanwhile, resource person E was aware of their abilities and intelligence, so the informants felt capable of being a referee even though they had heavier demands, which indicates positive self-efficacy. This finding was consistent with previous research that found that positive outcome expectations can increase individual interest and influence career decisions taken (Chen et al., 2016). Therefore, the informant decided to continue her career as a referee and a coach, not as an athlete.

Self-efficacy can be constructed from four sources, namely mastery experience, vicarious experience, verbal persuasion, and psychological states (Huang, Mayer, & Usher, 2020; MacAfee & Comeau, 2020). Mastery experience refers to an individual's prior experiences of success or failure and is believed to most influence the formation of self-efficacy (Hendricks, 2015; MacAfee & Comeau, 2020; Sheu et al., 2018).

Our interviewee claimed that since she had practiced rigorously beforehand, she was confident in her ability to prevail in the game. Furthermore, source person D stated that the Taekwondo that she participated in was a Poomsae competition. Therefore, her success in doing certain movements during practice would increase his self-efficacy.

> I feel that if the practice is good, the results will be good… I become more confident if I train consistently… I would be able to see the target more clearly. For example, for a belt rank increase test, I will make sure that I can do the techniques during practice so that when it is checked, I feel confident that I can do it. (Source person D)

The next factor is vicarious experience. When a person's perception of their chances for success is shaped by personal observations of other people's results, this is known as a vicarious experience (Hendricks, 2015; Huang, Mayer, & Usher, 2020; MacAfee & Comeau, 2020). If those who are similar to the individual experience success, the individual will believe that they can too (Bandura, 1997 in Huang, Mayer, & Usher, 2020; MacAfee & Comeau, 2020). The following remark is from one of the student-athletes we spoke with, who indicated that their older brother, who was already involved in Taekwondo, was the reason they felt capable and motivated to practice Taekwondo:

> I started Taekwondo at the age of 3 because I have two older brothers and a younger sister. Everyone joins Taekwondo, but what makes me want to participate in Taekwondo is that I watched my brother practice Taekwondo. (Source person F)
>
> At that time, I tagged along to pick up my sister and it looked interesting. The coach then asked me to participate. In the end, I have continued to practice Taekwondo until now. (Source person D)

Then, self-efficacy can also be formed from verbal persuasion or feedback from others. Positive feedback will make individuals feel capable of doing the tasks whereas negative feedback can make individuals doubt their abilities (Hendricks, 2015; MacAfee & Comeau, 2020). Supported by the statement of one of our sources. Source person D stated that when she wanted to give up in the middle of the match, her coach gave encouragement and motivated the resource person to keep trying and focus until the end. Based on the story of source D, sports clubs, especially Taekwondo, can be a crucial place for the development of talent in students. Furthermore, the trainer also provided input on the techniques used so that the student-athletes could improve their techniques.

> I have many coaches, both in clubs and on-campus… My coach at UI used to encourage me when he found out I was injured because he knew I do not like pain… There was a moment when I wanted to give up in the second round because I felt that I would not win the third round. I told the coach, and the coach reminded me that there was only one game left for me to win gold. So the coach was like, 'Come on, focus! Just a little bit more to win.' It's like when I can't kick with my left foot, but the coach gave me advice on how to do it... I would practice again so that later in the match I can kick with my right or left foot. (Source person D)

Finally, psychological states can affect individual self-efficacy. Individual performance will decrease when individuals feel anxious (Huang, Mayer, & Usher, 2020). Therefore, individuals' confidence in their abilities can decrease when in high arousal (MacAfee & Comeau, 2020). In our interview, the student-athletes realized that her psychological state before the competition could affect her performance. Thus, source person D tries to always think positively before the match and does not try to find out information about her opponent so that source person D can concentrate on the competition.

> What makes me sure of winning is because I have practiced. There are prayers from my parents, too. I just try to always think positively. If not, I will become nervous, and that will affect my performance... The coach also said to me to not look for information about my opponent after the bracket was out. Because people can change, we also don't know how hard they practice. So, I make sure not to be down or have a weird mindset before the game. (Source person D)

These various factors cause individuals to have high outcome expectations. That is, individuals believe that what they do will bring positive consequences (Lent & Brown, 2013). In our interview session, one of the student-athletes shared that an experience she could never forget was when she won bronze in a championship. This experience was unforgettable because the result was worse than her expectations and history of achievement. The quotation below shows that informants have high outcome expectations because of their previous experience:

> An unforgettable championship moment was when my team won bronze. At that time, we always get gold. During the tryouts before the championships, the main thing is that we always get gold. Yet maybe because we are used to it, on the day of the big championships we only won bronze. (Source person E)

Barriers Affecting Career Decisions

Based on the information provided by the student-athletes regarding their future career plans, all the student-athletes expressed that they would not pursue their sports career professionally. There was a student-athlete who stated that he would quit Taekwondo completely, and there was a student-athlete who decided to become a referee or a coach. The consequence of personality and contextual influence on career goals that's what leads to this change in career.

Lent & Brown (2013) stated that environmental support and the absence of barriers will make individuals more likely to set goals and carry out adaptive career behavior. Environmental influences, in the form of support or obstacles, can directly influence objective and adaptive career behavior, affect the strength of the objective relationship with behavior, or affect self-efficacy and outcome expectations which then affect individual objectives (Lent & Brown, 2013). For student-athletes, barriers perceived by student-athletes can affect sports career planning (Urbanaviciute et al., 2016; Wendling & Sagas, 2020). For our informants, finance is the biggest barrier, so the informants decide not to continue their sports careers:

> To be honest, there are those who offered me to become a professional athlete because the coaches see potential in me, and there are thoughts of becoming an athlete. But my father asked me to explore other fields, for example, the academic field. For sport itself in our country, it has not been paid much attention. It is different from abroad. That was the reason why my father was reasonable enough to think again and again to decide to become a professional athlete. (Source person B)

> As for athletes, I have had enough. Seeing the capacity of Taekwondo athletes in Indonesia to live is still not there…. In addition, the financial appreciation for the referee or coach is better than for the athlete. (Source person E)

Another barrier is the age of the student-athletes. Informants feel that his age is not young anymore making it difficult to compete with other athletes who are still growing:

> As for athletes, it seems I had enough. Looking at my age, I am not young, and this is my limit. For even higher levels it will be difficult. (Source person A)

Another factor to be considered by student-athletes is the fact that each of them has advantages in other fields, namely academics. Furthermore, the encouragement from parents who prioritize education makes student-athletes choose not to continue their careers as professional athletes. This makes them choose other options with less risk than pursuing a career as a student-athlete:

> It's a shame in my opinion (to pursue the sport professionally) because the competition is also quite tough. While I also have potential in other fields. In academics. With my psychology studies, I can work in HR or continue pursuing

clinical psychology…. So my parents' suggestion is to pursue my academic education. (Source person F)

I really wanted to be a professional athlete since junior high school, but my parents are very concerned about education... When I wanted to enroll in a Specialized Sports School, one of the considerations was whether I was sure I would persist in Taekwondo and wouldn't get bored... When I was deciding on a major and university, I wanted to major in sports at Universitas Negeri Jakarta, but my parents still pushed me to focus on academics. (Source person D)

Interest, Choice Goal, and Choice Actions

Individual interest in a particular career area makes individuals select and pursue that field (Lent et al., 2006). At that time, individuals will gather information about that field before finally taking action to achieve their desired career goals (Chan et al., 2016). In our study, the same thing happened. All our sources have the same interest, namely in the field of Taekwondo. Hence, the chosen goal is to actively participate in Taekwondo. To achieve their chosen goal, the student-athletes used various methods, such as moving locations, and changing coaches, and teams to develop their careers (John, Gropper, & Thiel, 2019). These can be found in informant D who decided to move clubs with new coaches and team members because of his desire to focus on Poomsae Taekwondo.

Nonetheless, due to the factors previously explained, our interviewees' future career goal choice is not to become a Taekwondo athlete again. The interviewees have spent most of their lives engaging in this sport, like one of the interviewees who has been practicing since the age of 3 and collected various information about this field. Based on the experience and information they had, the student-athletes then determined whether this career field was right for them or not. All interviewees felt that this career field was not suitable and decided not to continue their career as an athlete. As a result, our sources have different choice goals. Regardless, some of the student-athletes wanted to continue practicing Taekwondo in their daily lives, some wanted to become referees, and some wanted to quit this sport. Differences in the choice goals of the resource persons occurred due to differences in the factors discussed earlier. Consequently, the student-athletes will then take action to achieve their new choice goal.

CONCLUSION

The results of this research interview indicate that the Social Cognitive Model of Career Self-management model (CSM) can be used to explain career decisions and education of Taekwondo student-athletes in Indonesia. Where support from family, friends, and coaches is the main factor driving student-athletes to start and persist in this career field. Meanwhile, environmental factors, such as the ability of the sports field to support student-athletes lives and develop their talents, and personal characteristics, such as age and gender, can influence the decision of whether student-athletes will remain active in this field or not. Unfortunately, the field of sports in Indonesia has not been able to become an area that can develop the athlete's talents to the fullest. The sport also cannot be seen as a primary job in Indonesia, so all of the student-athletes we interviewed agreed not to play sports as their main job. Especially considering that these student-athletes have good intelligence so that they have other career options that still can be developed.

According to the study's findings, Indonesia's relevant parties should be aware of any gaps and implement suitable programs for the professional and academic advancement of student-athletes. Unseemly and greedy activities must end to prevent Indonesia's gifted children from having their gifts buried. Since we believe some of our source people might continue their athletic careers if Indonesia's sports area improves from where it is presently. Further research needs to be conducted to look at the factors that influence the career and educational decisions of student-athletes who are not intelligent in the academic field. We believe that these student-athletes can choose other career fields as their primary career because they have good academic intelligence. Different stories will be more likely to emerge for those student-athletes with less scholastic/academic competence under a similar climate of sport in Indonesia.

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An Exploration of Technical Communication as an EFL Learning Motivational Intervention for Engineering Majors

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Abstract

This study set out to examine the implications of using technical communication instructional materials as a motivational intervention for freshman Japanese engineering students learning English as a Foreign Language (EFL). As this particular segment of learners has been identified as being hesitant toward EFL instruction, a suite of technical communication materials was presented and examined as a possible means for promoting engagement in the EFL classroom with these learners. The study examined a sample of 76 (n=76) learners' impressions and attitudes towards a three-week unit of technical communication instructional materials. These attitudes and impressions were measured through a mixed-method questionnaire comprised of items and scales from Keller's (2010) Instructional Materials Motivational Survey (IMMS) and additional open-ended items. Results indicated a positive endorsement of attention, relevance, confidence and satisfaction variables associated with the materials. Open-ended items revealed a general overall enjoyment derived from the communicative tasks, and an interest with technical communication and technical content presented within the materials.

Keywords: ESP, EFL, Technical Communication, Japan, Engineering Majors, Engagement, Instructional Materials Evaluation

Introduction

Science and engineering students in Japan have been described as being less motivated English as foreign language (EFL) learners than tertiary learners in other academic majors (Johnson, 2012; Maekawa & Yashima, 2012; Nishizawa, Yoshioka, & Fukuda, 2010). Their reluctance towards English language learning has been attributed to the fact that foreign language (FL) classes are usually forced upon such learners in the form of undergraduate breadth requirements, and that FL classes are perceived to take time away from primary areas of study and interest (Johnson, 2013; Tsuchiya, 2006). Additionally, engineering majors in Japan have demonstrated relatively lower levels of success in standardized English tests than learners in most other academic majors (ETS, 2020). Considering these factors contributing to EFL learning hesitancy in this segment of learners, this study sought to examine if a particular curricular intervention could positively orient learners towards required EFL classes. More specifically, it sought to ascertain if the use of English for Specific (ESP) instructional materials oriented towards these learners' academic majors would engender greater feelings of interest and relevance toward English learning, and positively influence motivation, attitudes and engagement.

Instructional materials have been shown to play a significant role in classroom attitudes and engagement. This has been largely described in motivational and demotivational terms (Bahous, Bacha, & Nabhani, 2011; Gorham & Millette, 1997; Williams, Burden, & Al-Baharna, 2001), where instructional materials are seen to either facilitate or inhibit motivation in learners. In Nikolov's (2001) examination of language learners in Hungary, it was demonstrated that the layout features, qualitative aspects, and tasks contained within texts, influenced learners' degree of motivational engagement. Similarly, Ushioda (1996, 2001) revealed that Irish FL learners' motivation varied partly due to their perceived satisfaction, or dissatisfaction, with course materials; with coursework, tasks which exceeded lexical knowledge, and the gap between coursework and exam content, being shown to have demotivating effects on learners. Examining the influence of instructional materials on FL language learning from a different perspective, Matsumoto (2007) demonstrated that materials could be an important contributor to peak learning experiences. The study showed how authentic instructional materials that aligned with FL learners' interests contributed to a state of high affective and cognitive fulfilment or satisfaction with the learning experience. However, it was also revealed that materials could be a demotivating factor when not suitably aligned with learners' interests.

The motivational effect of particular types of instructional materials on language learners has also been observed in a number of studies. One particular area which has received attention is the specific attributes of authentic versus non-authentic instructional materials (Gilmore, 2007; Guariento & Morley, 2001; Richards, 2006). In an examination of South Korean tertiary EFL learners, Peacock (1997) observed that, while learners reported that they found authentic material to be less interesting than artificial materials, their observed on-task engagement and motivated behavior were significantly higher with authentic materials. Other instructional material types that have been empirically compared include paper-based versus web-based materials. Jarvis and Szymczyk's (2009) examination of web- and book-based grammar learning materials found that while students initially found the web-based materials attractive and interesting, they preferred book-based materials for their availability, clear organization, comprehensibility of presentation, detailed explanations of grammar points, systematic nature, and portability. They found the lack of organization and the distracting nature of website links to be particularly demotivating in autonomous grammar learning. In

another study presenting somewhat conflicting results, Henry (2007) found that ESP tertiary learners in Brunei embraced corpus-driven online materials. In particular, learners found that access to the discourse structures and lexico-grammatical features enabled them to access language data they perceived necessary for fulfilling their language learning goals.

These studies demonstrate that the content of instruction, particularly as it is conveyed through instructional materials, influences learner motivation in a variety of ways. However, the limited number and scope of these studies suggest that further research is needed to clarify the motivational effects of instructional materials on language learners across a broader spectrum of learning contexts. In order to expand upon the previous research, this study set out to examine the role of ESP technical communication (TC) instructional materials on the EFL learning motivation of tertiary engineering students. The following research questions have been developed to guide this inquiry.

Research Question 1: Do TC instructional materials promote engagement with Japanese engineering students learning EFL?

Research Question 2: What characteristics of TC instructional materials appeal to this segment of learners?

Methods and Materials

Participants

The participants in this study were all Japanese engineering students learning EFL at an engineering university in Japan. All were first year students enrolled in a mandatory Freshman General English class. This particular class represents the first of six English classes required as part of the liberal arts breadth requirements for the Bachelor of Engineering degree at this institution. The sample represents a convenience sample of students enrolled in the author's Freshman General English classes, and consisted of a total of seventy-six (n=76) participants. The sample was comprised of students majoring in mechanical engineering (n=39) and architecture (n=37).

Instructional Materials

A three-week unit of instruction was developed to introduce students to foundational topics in basic English for technical communication for freshman engineering students. The instructional materials utilized over the three-week unit covered three weekly topics: 1. talking about engineering studies and future careers, 2. numbers and specifications, and 3. materials and their characteristics. Each lesson focused on providing a lexical foundation for the topic, and involved a series of communicative tasks that enabled the students to use the language interactively with their classmates and teacher.

Data Collection: Instruments and Methods

The first section of the TC-IMMS was comprised of a questionnaire based on Keller's (2010) Instructional Materials Motivation Survey (IMMS) which measured the instructional materials' cognitive appeal to learners. The questionnaire was comprised of 36 Likert-scale items consisting of four scales examining separate cognitive variables associated with motivation. The first scale, Confidence (CON), was comprised of nine items measuring the

degree to which instructional materials promote self-efficacy in learners with a particular focus on the materials' perceived level of difficulty and comprehensibility. The second scale, Attention (ATT), was made up of twelve items assessing the degree to which the materials initiate and sustain learners' attention through content and design features. The third scale, Relevance (REL) was a nine-item scale measuring the degree to which learners perceived the materials to be of present or future value, or represent personal or professional utility value. Satisfaction (SAT), consisted of six items measuring the degree to which the materials fostered achievement motivation (feelings of accomplishment) and intrinsic motivation (particularly interest and enjoyment) in learners. The second part of the TC-IMMS was comprised of three open-ended items asking learners about their general impressions of the suite of TC instructional materials, which lessons they particularly liked, and why, and which lessons they did not like, and why. These questions were asked to reveal perspectives and insights not readily apparent in the scales described above, and to add further descriptive insight into the closed item responses.

The TC-IMMS was administered at the end of a three-week instructional session within which three ninety-minute technical communication classes were taught. A total of seventy-six (n=76) TC-IMMS forms were collected. Data from the collected TC-IMMS were input into SPSS v.26 for analysis and general descriptive statistics were calculated to obtain an overall picture of how the scales and specific items were endorsed. Open-ended items were analyzed using two-step content analysis by two raters (the author and a colleague), a process which involved first-round categorization into general themes, then a second-stage of further refinement into final response categories (as described in Saldana, 2009).

Results

Overall results indicated a positive endorsement of all scales from the IMMS-derived portion of the TC-IMMS. Attention and Satisfaction scales were particularly strongly endorsed with means over four (ATT m=4.15; SAT m=4.11), with Relevance and Confidence scales also demonstrating strong endorsement with a mean approaching four on the five-point scale (REL m=3.96; CON m=3.90).

Table 1: TC-IMMS scale summary

	N	*a*	m	min	max	range	variance	item#
CON	76	.72	3.90	3.48	4.21	.724	.075	9
ATT	76	.86	4.15	3.78	4.39	.605	.038	12
REL	76	.76	3.96	3.69	4.23	.539	.039	9
SAT	76	.76	4.11	3.35	4.73	1.38	.267	6

Individual item results are presented in Appendix 1. The highest endorsed individual items were SAT6 (m=4.74), SAT3 (M=4.59), ATT11 (4.39), ATT5 (4.37), ATT 3 (4.36). While the least endorsed item was from the Satisfaction scale (SAT4: M=3.36), four out of the five least endorsed items were from the Confidence scale (CON1: m=3.49; CON2: m=3.58; CON7: M=3.74; CON3: m=3.78).

The direction and strength of relationships between scales was investigated using Pearson product-moment correlation coefficient. Correlations between r =.50 to r =1.0 were observed between all scales (Table 3) which is indicative of a strong positive relationship (Cohen, 1988). These findings reflect positive correlational relationships between IMMS scales observed in other studies (Keller, 2010).

Table 2: Pearson product-moment correlation between TC-IMMS scales

	1	2	3	4
ATT	--	.668**	.527**	.741**
REL	--	--	.535**	.682**
CON	--	--	--	.519**
SAT	--	--	--	--

**correlation significant at the 00.1 level (2-tailed)

Open-ended items provided complementary insights into how the students felt about using the materials, which specific materials they liked and disliked, and why. Open-ended item 1 asked student how they felt about using the TC instructional materials. The most frequent responses (Table 3) fell into a nonspecific general positive endorsement category with students deriving enjoyment from using the materials (n=37) or general positive feelings of the materials being good, great or liked (N=20). The second most frequent category of response was a positive orientation toward the skills they entailed, specifically communicating in English (N=21) and the practical/useful nature of the skills practiced (n=8). The third most frequent response category was also positive, and included responses focused on the appeal to personal interest generated by the materials (n=21). The fourth category of response was a positive feeling toward the knowledge conveyed, with students indicating that through the materials they could learn new things (n=13), and could learn technical English (n=7). A fifth category was comprised of negative impressions of the materials which were attributed exclusively to their degree of difficulty (n=2).

Table 3: Open-ended item 1: Overall impressions of TC materials and cited reasons

Category 1: positive: nonspecific general positive endorsement

cited reasons	(n)
enjoyed	n=37
good/great/liked	n=20
total:	n=57

Category 2: positive: skills entailed

cited reasons	(n)
provided opportunity to communicate	n=21
practical/useful	n=8
total:	n=29

Category 3: positive: appeal to interest

cited reasons	(n)
materials were interesting	n=21
total:	n=21

Category 4: positive: knowledge conveyed

cited reasons	(n)
learned new things	n=13
could learn technical English	n=7
total:	n=20

Category 5: negative

cited reasons	(n)
difficult	n=2
total:	n=2

Open-ended item 2 asked students which lesson they liked most and why (Table 4). Lesson 3, which covered materials used in engineering and their physical properties and characteristics, was most preferred (n=48). The most significant reason for this was the high endorsement of the Mystery Item Quiz activity (n=28). This task involved students guessing their partner's "mystery item" through asking about its physical properties and characteristics using vocabulary and concepts learned in the lesson. Other reasons cited for this preference were an overall interest in the materials and engineering theme, the grounding of the theme in a specific topic that students liked (bicycles), and the highly interactive nature of the lesson. The second most preferred lesson was numbers and specifications. This lesson was positively endorsed due its practical value, interest in specification themselves, and interest in the various machines introduced in the lesson. The third most preferred lesson was Lesson 1, which introduced the language required to discuss engineering studies and future careers in engineering. Reasons cited for this preference were the engineering content, the opportunity to learn about famous Japanese engineers and their backgrounds, and the connection of the lesson content to students' future lives and careers. A number of students (n=6) responded that they liked all three lessons equally well, and had no particular preference.

A third open-ended item asked students if there were any particular lessons they did not like, and to explain reasons why they disliked particular lessons. Only three responses were provided with two students (n=2) replying that they did not like Lesson 2 due to the difficulty, and one student (n=1) stating that they did not like lesson three because they were not interested in the topic.

Table 4: Open-ended item 2: Lesson preferences and cited reasons

First preference	n	Second preference	n	Third preference	n
Lesson 3	48	Lesson 2	16	Lesson 1	7

Reasons cited	n	Reasons cited	n	Reasons cited	n
mystery item quiz	28	practical	9	topic (engineering)	2
interesting	7	specifications	7	famous engineers	2
topic (bicycles)	7	machines	2	future relevance	2
interaction	6				
materials	5				

Discussion

A recurring finding in language learning research in Japan is the presence of a demotivational arc in English learning that gradually declines over scholastic careers and reaches its nadir at the tertiary level (Berwick & Ross, 1989; Falout, Murphey, Fukuda, & Trovela; 2013; Ryan, 2009). This reticence to engage EFL learning is particularly pronounced in Japanese engineering students (Johnson, 2013; Maekawa & Yashima, 2012; Nishizawa, Yoshioka, & Fukuda, 2010; Tsuchiya, 2006). To address this situation, this study set out to test the efficacy of TC instructional materials as a motivational intervention to increase engagement of Japanese engineering students in the EFL classroom. The study provided and number of valuable insights that those tasked with instructing these students should consider when selecting materials and tasks for this segment of learners.

TC instructional materials attracted learner attention in a manner that initiated and sustained their attention. This was evident in the highly endorsed attention variable and also the responses to the open-ended items. Several students commented on how the TC instructional

materials drew them in and held their attention. Student A20 wrote "I learned content and words I didn't know, that was interesting. It attracted my attention with many things, like machines, to learn about them was interesting." Similarly, student A26 commented "It was really good. Engineering content was interesting and made me want to study." Dudley-Evans and St John (1998) explain that, to stimulate attention, ESP instructional materials "must contain concepts and/or knowledge that are familiar but must also offer something new, a reason to communicate, to get involved. The exploitation needs to match how the input would be used outside the learning situation and take account of language learning needs. The purpose and the connection to learners' reality need to be clear" (p. 172). The comments above indicate that the TC instructional materials in this lesson met these criteria. In promoting such engagement, the materials represented sufficient value to students to foster positive attitudes and persistent efforts in the classroom (Wigfield & Eccles, 2000).

Additionally, the high degree of satisfaction with the TC instructional materials indicated in the questionnaire results demonstrated that the learners were motivated intrinsically by the materials and the tasks required therein. The large number (n=57) of nonspecific general positive responses to the first open-ended item support a high level of overall satisfaction with the materials. Open-ended item responses such as "I feel fun every time. I can feel enjoyment studying English for the first time" (A1) and, "I enjoyed talking with others about "things" in English. I enjoyed it so much" (B11), indicate that students found intrinsic value in engaging in the tasks for their own sake. Intrinsically motivated classroom behaviors are those which are engaged in for the inherent interest, enjoyment and satisfaction they provide, and are internally driven (Deci & Ryan, 1985; Deci, Vallerand, Pelletier, and Ryan, 1991). Positively orienting instruction toward these intrinsic motives through TC instructional materials appears to coincide with Tomlinson's (2010) suggestion that a primary consideration in instructional materials design should be the degree to which they are engaged by learners.

The results of the questionnaire also indicated that students found that the TC materials had clear present or future personal or professional utility value. This was clear in both the strong endorsement of the relevance scale, and in open-item responses. Open-ended responses such as "There was a lot of useful and practical English in this class" (A8), and "It was interesting, I learned many important and useful things for my future" (A11), support an overall impression that many students found the TC materials relevant to their interests and future careers. These ideas were further supported in the responses to open-ended item 2, which asked students what lessons they liked and why. Many responded with specific references to the TC instructional materials being relevant to their specific interests, hobbies, and future careers. This relevance allows students to draw on both intrinsic and instrumental characteristics in appealing to both personal interests and careers. It also provides students with cultural schemata to be confident in the world of science and engineering (Alptekin, 1993). This is particularly important as in Japan a number of engineering jobs are becoming inexorably tied to English, particularly in IT, with English-speaking workers from around the world filling posts in Japanese engineering firms in recent years (Kopp 2019, Nagata 2018). This relevance is valuable as it can motivate students as they envision their future selves and engage in positive learning behaviors that will move them towards these desired future outcomes (Dornyei, 2009; Maekawa & Yashima 2012; Ueki & Takeuchi, 2013).

Another encouraging result was students' positive endorsement of the confidence scale. A number of studies have idenfied a lack of confidence or self-efficacy as a barrier for Japanese tertiary students learning EFL (Burden, 2002; Sakai & Kikuchi, 2009; Tsuchiya, 2006).

While some students initially found the English-medium TC class intimidating, their attitudes changed when they encountered the subject matter together with their classmates, as student A39 commented, "First, I felt oh no, only English. I thought it was difficult, but I could slowly understand with my friends, I have a great time in these classes." Other students found just the opportunity to use English generated self-efficacy, as student A23 reflected, "It was really good. I could communicate with others. It was good having a chance to communicate and work with others, I could do it, I enjoyed it." A limited amount of exposure and opportunity to use English has been shown to inhibit learner confidence in Japanese EFL education (Benson, 1991; Matsuda & Gobel, 2004). As Teeter (2017) and Maekawa and Yashima (2012) observe, the opportunity to actually practice the language can help reduce anxiety, and in this case, contribute to increased confidence in using English.

Conclusion

The TC instructional materials utilized in this study appeared to attract and sustain student attention, provide a high level of intrinsic satisfaction, appeal to present interests and future ambitions, and instill a sense of confidence in learners. These positive results suggest that IC instructional materials could serve as a possible motivational intervention to encourage engagement with Japanese engineering students learning EFL. A limitation that must be acknowledged is the limited scope of the technical communication course examined in this study. Piloting and examining a three-week technical communication course would likely render a different outcome than an extensive faculty-wide ESP program (such as that described in Guest, 2016). As such, the novelty appeal of the course may have been a factor contributing to the positive results. This limitation notwithstanding, the results of this study suggest that aligning EFL instruction with academic majors can appeal to learners on a variety of levels and promote engagement. Further research across other academic areas and contexts using other types of ESP materials is necessary to elucidate the extent to which instructional materials affect classroom engagement and attitudes toward foreign language instruction.

Appendix 1: TC-IMMS item summary

n	M	SD	var.	item response frequency (%)				
				1	2	3	4	5
CON1	76	3.49	.97	.94	1.3	17.1	26.3	42.1	13.2
CON2	76	3.58	.80	.64	0	9.2	34.2	46.1	10.5
CON3	76	3.78	.90	.81	1.3	6.6	26.3	44.7	21.1
CON4	76	4.21	.80	.64	0	3.9	11.8	43.4	40.8
CON5	76	3.92	.84	.71	0	5.3	23.7	44.7	26.6
CON6	76	4.16	.73	.53	0	1.3	15.8	48.7	34.2
CON7	76	3.74	.85	.73	1.3	3.9	32.9	43.4	18.4
CON8	76	4.21	.69	.48	0	0	15.8	47.8	36.8
CON9	76	4.05	.79	.63	1.3	0	21.1	47.4	30.3
ATT1	76	3.92	.81	.66	0	7.9	13.2	57.9	21.1
ATT2	76	3.79	.89	.80	1.3	6.6	25	46	21
ATT3	76	4.36	.64	.41	0	0	9.2	46.1	44.7
ATT4	76	4.21	.71	.51	0	1.3	13.2	48.7	36.8
ATT5	76	4.37	.78	.60	3.9	5.3	42.1	47.4	1.3
ATT6	76	3.99	.79	.62	0	3.9	19.7	50	26.3
ATT7	76	4.17	.75	.57	0	2.6	13.2	48.7	35.5
ATT8	76	4.07	.69	.48	0	1.3	17.1	55.3	26.3
ATT9	76	4.12	.90	.82	0	6.6	15.8	36.8	40.8
ATT10	76	4.09	.69	.48	0	2.6	11.8	59.2	26.3
ATT11	76	4.39	.73	.53	0	1.3	10.5	35.5	52.6
REL1	76	3.71	.89	.79	0	11.8	22.4	48.7	17.1
REL2	76	4.03	.67	.45	0	0	21.1	55.3	23.7
REL3	76	4.22	.72	.52	0	1.3	13.2	47.4	38.2
REL4	76	3.96	.80	.65	0	3.9	22.4	47.4	26.3
REL5	76	3.89	.94	.89	0	9.2	22.4	38.2	30.3
REL6	76	4.05	.69	.47	0	1.3	17.1	56.6	25
REL7	76	3.84	.83	.69	0	6.6	23.7	48.7	21.1
REL8	76	3.70	.88	.77	2.6	5.3	26.3	51.3	14.5
REL9	76	4.24	.74	.55	0	2.6	10.5	47.4	39.5
SAT1	76	3.92	.87	.76	0	6.6	22.4	43.4	27.6
SAT2	76	3.82	.92	.84	1.3	5.3	28.9	39.5	25
SAT3	76	4.59	.57	.32	0	0	3.9	32.9	63.2
SAT4	76	3.36	.96	.92	3.9	10.5	43.4	30.3	11.8
SAT5	76	4.24	.67	.45	0	0	13.2	50	36.8
SAT6	76	4.74	.55	.30	0	0	5.3	15.8	78.9

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Multimedia Application for Improving Chinese Language Skills for International Students

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Abstract
In the last decade, research on Chinese as a second language teaching and learning has yielded significant advancement through state-of-the-art technology. This paper addresses the major difficulties that students face in recognizing Chinese characters. To solve the problems, the study proposes the online multimedia application for teaching Chinese characters. The needs analysis was conducted beforehand with the intention of provoking students' perceptions of both traditional and multimedia methods of teaching and learning Chinese characters. The purposes of this research were 1) to identify the efficacy of the proposed multimedia learning platform for learning Chinese characters 2) to compare students' learning achievement through pre-test and post-test via the proposed system and, 3）to compare learning performance between traditional teaching (controlled group) and multimedia platform teaching (experimental group). The sample of this research included 60 students who are studying Chinese Language as a Second Language in an international school in Beijing from 12-16 years old. The data were analyzed using mean, correlation analysis and ANOVA. The findings showed that 1) The students' achievement after utilizing the system was significantly higher than controlled group; 2) The student's level of satisfaction toward the system was at the highest level. It was found that the proposed online system was beneficial to the improvement of learners' language proficiency and learning motivation and 3) The application of multimedia learning reduced learners' language learning anxiety, and there was a significant difference between the experimental group and the control group.

Keywords: Multimedia Application, Educational Technology Innovation, CALL (Computer Assisted Language Leaning), Second Language Learning

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1. Introduction

Multimedia learning has been a widely researched area, often following cognitive theories of learning with verbal and visual modalities (Chun & Plass, 1997). Many studies (Yoshii, 2006) showed that input in multiple modalities improved vocabulary acquisition while reading. In recent 20 years , with eht development of internet and mobile technology, mobile assisted language learning (MALL) becomes a hot spot not only in the teaching practice but in the field of research. (Pachler 2010). Mobile Assisted Language Learning (MALL) is a branch of the research field of mobile learning (mLearning), which attracts more and more scholars' attention. Mobile technology is rapidly attracting new users, providing more and more capacity, and allowing more complex use. This will affect cultural practice and provide a new environment for learning (Pachler 2010).

2. Research Objectives

2.1 To find the efficiency of the Multimedia network learning Application for Chinese language learning as a second language for teenagers.

2.2 To compare the language learners' achievement on the Multimedia network learning Application.

2.3. To assess the young learners' satisfaction with the Multimedia network learning Application.

3. Research Hypothesis

There are three research hypotheses as to the following:

3.1 Students studying with the Multimedia network learning Application for language Proficiency including reading, listening, writing and speaking ability have higher or lower achievement than those study with traditional education with statistical significance 0.05.

3.2 Satisfaction level of young learners of Chinese language as a second language who study with the Multimedia network learning Application are increasing with their language proficiency level.

3.3 There are significant differences in the scores of Foreign Language Classroom Anxiety Scale (FLCAS) between students using multimedia application teaching and students using traditional teaching methods after three months different treatment.

4. Research of Methodology

4.1 The population: The sample of this research included 60 students, and half using the Multimedia network learning Application and the control group studying with traditional method from one international school in Beijing studying in the first semester of 2021, aged from 12 to 18.These 60 samples were originally in the same language learning class. At the beginning of the experiment, the researchers randomly divided them into two groups. Therefore, we can assume that at the beginning of the experiment, there were no significant differences in their language proficiency, language learning satisfaction, language learning anxiety and other factors.

4.2 The research instruments consisted of

(1)The Multimedia network learning Application (TCSL);

(2)A post-test as an achievement assessment for both groups;

(3)Satisfaction questionnaires to assess the student's level of satisfaction toward the Multimedia network learning Application. There are ten questions in the satisfaction questionnaire, mainly including teaching content, teaching methods, teachers, learning environment, learning effects, etc. The questionnaire uses five scales, and the students answer very satisfied, relatively satisfied, average, dissatisfied, very dissatisfied on 5-point Likert scale.

(4)Foreign Language Classroom Anxiety Scale(FLCAS), by Horwitz, which is a well-established instrument that has been widely applied in different countries with learners of various L2s and L1s It is comprised of 33 items, responded to on a 5-point Likert scale, ranging from "1 (Strongly agree)" to "5 (Strongly disagree)." It is generally recognized as having a one-factor structure (Horwitz 1991) concerning performance evaluation within both academic and social contexts.

(5)In order to test the difference in language proficiency between the experimental group and the control group, we conducted a language proficiency test for the two groups of students at the end of the experiment, using The Chinese Proficiency Test （HSK） as the measuring tool, which a standardized test with good reliability and validity.The Chinese Proficiency Test is a standardized test issued by the Ministry of Education of China and the State Language Commission. The Chinese language proficiency is divided into six levels, from beginners to very proficient in the language. Each level is a separate test. According to the students' language proficiency, the researchers selected the HSK-4 test as a measuring tool. The test consists of three parts: listening, reading and writing, with 100 points for each part and 300 points for the total. The total length of the test is 100 minutes.

5. Conclusion

After three months of experiments, we conducted language proficiency tests, learning satisfaction tests and anxiety tests on the experimental group and the control group respectively, and found that there were significant differences between the two groups.

5.1 There is significant difference in language proficiency between the two groups.

Through the descriptive analysis of the HSK scores of the experimental group and the control group, we can find that there are differences between the two groups. In order to verify whether the differences are statistically significant, we also made a correlation analysis between the group and the HSK scores.

Table 1 Correlation Analysis of HSK scores between two groups

Correlations				group	hsk
Spearman　Rho	Group	Coefficient		1.000	.512[**]
		Sig.（Two tail）		.	.000
		N		60	60
	Satisfaction	Coefficient		.512[**]	1.000
		Sig.（Two tail）		.000	.
		N		60	60
**.p (p < .01)					

The correlation analysis shows that there is a significant difference between the experimental group and the control group in language proficiency, with a significant level of 0.01. According to the judgment of the researchers, after a semester of differentiated treatment, the language proficiency of the experimental group and the control group is significantly different. Because teachers and other relevant control variables have been well handled, the most likely reason for this difference in language proficiency is different teaching methods. This conclusion is the same as the previous statistics of learner satisfaction. According to this analysis, because the experimental group used the APP for language learning, their language proficiency has changed, which is obviously better than the control group. That is to say, APP for language learning really has a promoting effect on learners' language learning.

5.2 There is significant difference in language learning anxiety between the two groups.
Correlation analysis showed that there was a significant difference between the two groups, the significant level was 0.01. The anxiety of the experimental group was significantly lower than that of the control group. We speculate that the difference in anxiety is due to the use of mobile apps by students in the experimental group. Using the mobile app to learn makes students feel relaxed, without pressure, and without having to face teachers or be asked questions directly. At the same time, the design of the mobile app is more interesting and can attract students to learn.

Table 2 Correlation analysis of Anxiety of the control group

Correlations			anxiety	group
Spearman Rho	anxiety	correlation coefficient	1.000	-.731[**]
		Sig.（two tail）	.	.000
		N	60	60
	group	correlation coefficient	-.731[**]	1.000
		Sig.（two tail）	.000	.
		N	60	60
**. At 0.01 level (double tail), the correlation is significant.				

5.3 There is significant difference in language learning satisfaction between the two groups.
As mentioned earlier, the control group and the experimental group were randomly assigned, so we can think that there was no significant difference between the two groups before the experiment began. After different treatment, we investigated the satisfaction of the two groups. The data of satisfaction of the two groups are as follows.

Table 3 Satisfaction Descriptive Analysis of two groups

Descriptive Analysis					
	N	Minimum	Maximum	Mean	SD
Satisfaction	60	20.00	50.00	38.7667	8.48801
N	60				

Table 4 Satisfaction Descriptive Analysis of the first group

Descriptive Analysis					
	N	Minimum	Maximum	Mean	SD
Satis1	30	30.00	50.00	44.2333	5.32193
N	30				

Table 5 Satisfaction Descriptive Analysis of the control group

Descriptive Analysis					
	N	Minimum	Maximum	Mean	SD
satisf2	30	20.00	49.00	33.3000	7.51160
N	30				

Through descriptive analysis, we can see that there are differences between the two groups. In order to verify whether the difference is significant, we have made a correlation analysis. Correlation analysis showed that there was a significant difference in satisfaction between the experimental group and the control group (p<0.01).

Table 6 Correlation analysis of Satisfaction and the groups

Correlations			Group	Satisfaction
Spearman Rho	Group	Coefficient	1.000	-.640**
		Sig. （Two tail）	.	.000
		N	60	60
	Satisfaction	Coefficient	-.640**	1.000
		Sig. （Two tail）	.000	.
		N	60	60
**. p < .01				

The statistical results show that the student satisfaction of the experimental group is significantly higher than that of the control group. As teachers and other factors have been controlled as control variables, the most likely reason to affect student satisfaction is different teaching methods, that is, the use of our multimedia APP. Although the correlation analysis only shows that there are students in the xia experimental group who use multimedia tools to learn between groups, they feel interesting and their satisfaction with learning is improved, while students in the control group use traditional methods to learn, so their satisfaction with learning is relatively low.

5.4 Summary
The researcher in this paper conducted satisfaction test, language proficiency test and anxiety test for the experimental group and the control group, and found that there were significant differences between the two groups in the above three tests. The students in the experimental group were more satisfied with learning, the language proficiency level was significantly higher than the control group, and the learning anxiety was significantly lower than the control group. We try to make the following conclusions:

1) The APP used in this experiment is conducive to improving students' satisfaction with Chinese language learning.
2) Using this APP is conducive to improving students' language proficiency.
3) The use of this app has a significant effect on reducing learning anxiety.

5.5 Discussion
Since this Chinese language learning software was originally designed with reference to Gagne's cumulative learning theory, each lesson includes the above eight links. It shows the grammar and vocabulary to be learned in this lesson through short stories, which belongs to the motivation and understanding stage of Gagne's theory; While the teacher's explanation video belongs to the acquisition and maintenance stage. A large number of rich interactive exercises provide opportunities for students to recall, profile and work. APP automatically judges the operation and brings timely feedback. The above links have been arranged since the initial design of the app, which avoids the differences caused by the different teaching styles of teachers in the traditional classroom.

The following four conclusions can be drawn from this study. Multimedia APP can help teenagers learn a second language in many ways. First, it can reduce students' learning anxiety, second, it can improve students' academic performance, third, it can improve students' satisfaction with learning, and fourth, it can make students more happy with learning Chinese language, which we can describe as the following chart. Figure 1 shows benefits of using APP.
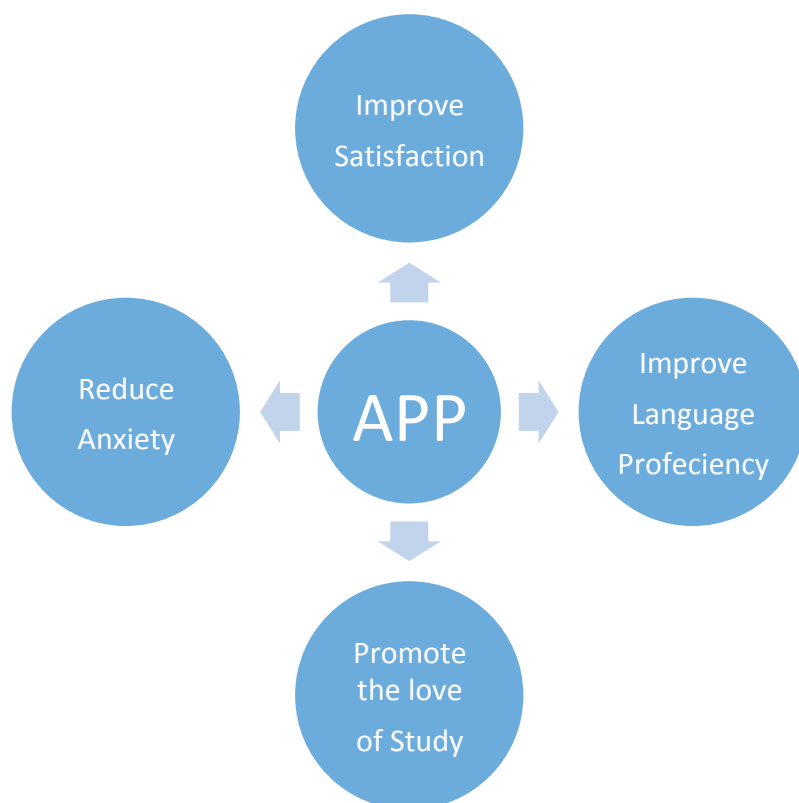
Figure 1 the relationship between Application usage and benefits

The relationship between these four benefits is still unclear, but we can roughly describe it as a process. Learning language using APP first makes academics feel fresh and interesting, which naturally reduces the anxiety that often occurs in learning. According to Krashen's theory, as long as learners' anxiety is reduced, learners' language performance will increase significantly, Therefore, students' language proficiency has been greatly improved. The reduction of anxiety and the rapid growth of language proficiency promote students to be satisfied with the language learning process.

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A Structural Equation Model of Technological Pedagogical Content Knowledge (TPACK), School Culture and ICT Literacy on the Technostress of Science Teachers

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Abstract

Teachers' Information and Communication Technology (ICT) literacy skills in employing teaching-learning modalities opened new avenues for making the teaching and learning process more dynamic and engaging. This study developed a model of TPACK, School Culture, and ICT Literacy Skills on Technostress of Science Teachers in secondary schools of Bukidnon Divisions in the School Year 2021-2022. The study examined teachers' best predictors of technostress, resulting in the development of a structural equation model (SEM). Descriptive, correlational, and causal-comparative designs were utilized, employing adapted survey questionnaires as instruments to obtain information from the 320 participants. Mean, Pearson Product Moment Correlation, Multiple Regression, and SEM were the statistical tools used. The results show that the level of science teachers' technostress, TPACK, and school culture was high and moderate in ICT literacy skills. Moreover, there was a positive and significant relationship between the science teachers' TPACK, school culture, and ICT skills with their technostress. The ICT skills and school culture were predictors of science teachers' technostress. Finally, the best fit model of science teachers' technostress is best predicted by ICT skills and TPACK. Hence, the model suggests the following: ICT Skills and TPACK influence teachers' technostress; the collaborative influence of teachers on ICT Literacy Skills and TPACK leads to less technostress; teachers' high level in TPACK with their basic level in ICT are influential factors in their technostress, and less technostress when there is basic ICT Skills and high TPACK levels with regards to doing the new modality of teaching and learning.

Keywords: Structural Equation Model, Technological Pedagogical Content Knowledge (TPACK), School Culture, ICT Literacy, Technostress

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Introduction

Teachers' skill in employing teaching-learning modalities is becoming increasingly important as ICT integration in education grows. Teachers must integrate technology into their activities to improve learning outcomes due to the rapid growth of modern technologies. Online learning is becoming more popular, and communication tools have become a necessary instrument for keeping schoolwork continuity. Teaching takes place in an environment where technology is prevalent yet not adequately incorporated into daily instruction. However, teachers have been hesitant to incorporate technology into their classrooms due to technostress. Much research has investigated the causes and effects of technostress in other contexts other than education, particularly among K 12 teachers.

Teachers were consistently emphasized as frontline workers in educational transformation by educational researchers (Kin and Kareem, 2016). Online teaching has become a must rather than a choice (Özgür, 2020; Panisoara et al., 2020). Teachers could encounter stress resulting from online teaching (Joo et al., 2016). Teaching is one of the most stressful professions in the world due to continuous changes derived from scientific and technological advances that have occurred from the 1990s to the present.

Today's teachers must consider the interaction of three key elements of the learning environment: content, pedagogy, and technology. Teachers are said to have an "understanding of technology pedagogical material," hence this is regarded as necessary (TPACK) (Rienties et al., 2013; Özgür, 2020; Schildkamp et al., 2020). Because teachers do not always have the knowledge required to use new and updated technologies (Altnay-Gazi and Altnay-Aksal, 2017; Li and Wang, 2020), the continuous upgrading of technology exposes teachers to constant technostress. Teachers' capacity to pedagogically incorporate technology in the classroom is an important factor in classroom innovation (Koh et al., 2017; Schildkamp et al., 2020).

Technostress arose because of the deliberate and effective application of modern technologies. It is defined as "a modern adaption disorder caused by an inability to successfully employ current computing technologies" (Özgür, 2020). Berger, Romeo, Gidion, and Poyato (2016) defined technostress as "individual stress produced by ICT technology." When teachers use ICT efficiently in the classroom, it can help students' learning processes and performance (Vandeyar 2015). While there has been a lot of research on technostress in the workplace, studies on teachers' technostress are still uncommon. (Çoklar et al., 2017). Boyer-Davis (2020) found that teachers experienced much greater technostress during the epidemic than before it. Teachers' worries and anxieties related to the use of educational technology increased significantly during the pandemic, according to Estrada-Muñoz et al., (2020). These findings suggest that more research is needed to better understand educators' technostress and better help them navigate the emergency online teaching environment.

Though much research has been done to identify the effects of technostress on individuals working in various sectors, it is widely acknowledged that few studies show how to determine science teachers' technostress levels and how to deal with this stress. With COVID-19 the academic environment looks a whole lot different for those involved in school systems — from teachers, parents, students as well as school administrators. In the changing face of educational systems and processes, it is important to acknowledge the systemic and structural underpinnings of teacher and educator stress that are very unique to this period. In this context, this study investigated the correlation among the variables such as TPACK level

and school culture (principal, colleague, parent and community support, and technical support) and ICT literacy skills that are thought to influence the technostress levels of science teachers and the effects of these variables on technostress. The Structural Equation Model could reveal the best fit variables that would help science teachers unburden their technostress.

Theoretical Background of the Study

1. Science Teachers' Technostress

Teachers are pressured to incorporate ICT into their teaching in schools by external forces such as policy, colleagues, and institution administration (Voet and De Wever 2017). Also, because teachers may not always have the skills required to operate new/updated technologies, continuous technological upgrading exposes teachers to constant technostress (Altnay-Gazi and Altnay-Aksal 2017). According to the transactional theory, stress is defined as a mismatch between perceived external or internal demands and perceived personal and social resources to deal with them, (Lazarus and Folkman 1984). No incident or scenario is inherently stressful; rather, the individual's subjective judgment of the circumstance as harmful, hurting, or taxing on available resources determines the stressor. It means that when the two are in sync, copying will be most effective.

The ability of teachers to integrate technology into the classroom is critical to educational innovation (Koh et al., 2017). Likewise, Bandura's (1986) social cognitive theory, stipulated that teachers' attitudes and feelings toward technology integration are influenced by their perceptions of their abilities to cope with technological obstacles (Yesilyurt et al., 2016). As a result, teachers' computer confidence could be a key internal element determining their technostress.

Moreover, ICT literacy skills are founded on Ajzen's Theory of Reasoned Action (TRA) and its extension. The Theory of Planned Behavior (TPB) explains how the behavioral intention to utilize technology influences actual usage. In online learning systems, empirical evidence shows that behavioral intention to use has the greatest impact on actual use. Prior research focused on the barriers to online learning system acceptance and use in the absence of special conditions (Abdekhoda et al., 2016; Al-Rahmi et al., 2019; Bacow et al., 2012; Gómez-Ramirez et al., 2019; Moore et al., 2011; Yadegaridehkordi et al.,2019).

Hence, TRA and TBP are supported by Information Technology Acceptance and Continuance Theories. As a result, the decision to first embrace a technology differs from the decision to continue to use it (Karahanna, et al., 1999). Research differs across the streams of technology acceptance study and technology continuance research. The rationale for this is that IT acceptance and continuance are theoretically and temporally distinct behaviors (Bhattacherjee and Lin 2014); IT acceptance focuses on why people adopt a technology, which is studied in the field of technology acceptance research, whereas IT continuance focuses on why people use a technology continuously, which is investigated in the field of technology continuance research. As a result, continuation is only possible if a person has accepted and used technology for a certain purpose.

To investigate the elements supporting teachers' technostress, this study used transactional theory (Lazarus and Folkman 1984) and social cognition theory (Bandura 1986) to select School Culture, TPACK, and ICT literacy skills as external factors. All these could be related

to the teacher's behavioral intentions to use technology to help learners learn in the new normal. In this time of the pandemic, the ease or complexity of adopting technology may provide either convenience or stress to the teacher in dealing with the current circumstances. Technostress, a subjective norm in this study, may have an impact on the teacher's ability to facilitate learning during the Covid-19 pandemic.

Specifically, this study sought to answer the following questions: 1.) What is the level of science teachers' technostress? 2.) What is the level of TPACK? 3.) What is the level of school culture?; 4. What is the level of ICT literacy skills?: 5. What relationship exists between science teachers' technostress and TPACK; School culture; ICT literacy skills?; 6.) Which of the following variables: TPACK, School Culture, and ICT literacy skills significantly predict technostress among science teachers?; and which of the following variables, namely, TPACK, school culture, and ICT literacy skills give the best fit to science teachers' technostress?

2. Possible Factors of Science Teachers' Technostress

2.1. TPACK

In this study, the TPACK deep scale model by Yurdakul (2012), Koehler and Mishra (2005) established the Technological Pedagogical Content Knowledge (TPACK) model, which combines three separate disciplines: technological knowledge (TK), pedagogical knowledge (PK), and content knowledge (CK) (CK). Technological Content Knowledge (TCK), Pedagogical Content Knowledge (PCK), Technological Pedagogical Knowledge (TPK), and TPACK emerge from the intersection and combination of the model's components.

The TPACK is a set of knowledge and abilities that teachers must have to effectively use educational technology in curriculum design and organization. One major hurdle to technological integration has been identified is a lack of TPACK (Blackwell et al. 2016; Koh et al., 2017). Individual ICT literacy has been shown to upset users' technostress in previous studies (Fuglseth and Soreb 2014) in different organizations. The higher the level of teachers' TPACK, the less stressed they were about using computers (Joo et al.,2016). However, the research did not look at the full impact of all elements. The TPACK was regarded as an essential individual internal component impacting teachers' technostress and the researchers wanted to see whether there were any potential integrated effects when it was paired with other elements.

In the Philippines, the public-school setting is far from the ideal classroom setting of the 21st-century set-up. Though, TPACK has been introduced to the pre-service teachers at the university to apply their knowledge, skills, and learning in terms of TPACK to their cooperating schools. The mere fact that the public schools lack EdTech tools, made the pre-service teachers find ways how they can adjust to the situation (Santos, et al., 2021). TPACK theory brings the challenge of its implementation in the classroom. Not all teachers could effectively deliver the lesson with the integration of technology. Technology development is fast changing which makes learning now just a history tomorrow.

2.2. School Culture

The school's culture and the support given to teachers and other stakeholders involved in the administration, infrastructure, and training processes are important considerations (Drossel,

Eickelmann, and Gerick, 2017; Eickelmann, Gerick, and Koop, 2017; Porter and Graham, 2016). It is stated that it has a considerable impact on the desire to use technology for educational reasons and that there is a strong link between the support provided (by management and coworkers) and the intention to use technology (Ansyari, 2015; Chai, Koh, and Teo, 2018; Dong et al., 2019; Joo et al., 2016; Koh, Chai, and Lim, 2017; Meristo and Eisenschmidt, 2014).

2.3. ICT Literacy Skills

Teachers' literacy skills in information and communication technologies (ICT) are another significant component to assess in the context of technostress. Prior research in various businesses has indicated that technostress can have certain detrimental implications because of the continually evolving ICT and its numerous functions and uses. For example, causing negative feelings in users such as anxiety, mental fatigue, skepticism, and inefficacy (Salanova et al., 2013), reducing users' innovation and productivity directly or indirectly by reducing their satisfaction with ICT use, reducing users' continuous usage intention for various technologies (Maier et al., 2015), and negatively influencing individual job satisfaction and commitment (Jena. 2015). Technology-related stress has also been demonstrated to hurt teachers' feelings and intentions to use ICT in the classroom.

Because stress is a result of the interaction between the individual and the environment, it is necessary to reveal the causality between the factors that lead to technology as well as the environmental factors that influence technostress and the internal factors that define the individual to reveal the causality between the factors that lead to technology. TPACK, School Culture, and teacher ICT literacy skills will be examined as major internal factors impacting science teachers' technostress in this study.

The Hypotheses of the Study

The following were tested at a 0.05 level of significance:
H.1. There is no significant relationship that exists between science teachers and TPACK, School Culture, and ICT Literacy Skills.

H.2. TPACK, School Culture, and ICT Literacy Skills do not predict science teachers' technostress.

H.3. TPACK, School Culture, and ICT Literacy Skills do not give the best fit on science teachers' technostress.

Methodology

1. Research Designs/Model

The research designs used in this study were descriptive, correlational, and causal-comparative since they were deemed appropriate. The descriptive research design is highly beneficial for describing the features of a population or a phenomenon being studied during the study's conduct when the variables are merely observed and not controlled or altered. Such a design does not provide answers to indications like how, when, or why a population's traits developed. It merely responds to the inquiry "what."

The causal-comparative design was employed in this study to establish a cause-effect link between the variables; that is, to check or analyze whether the exogenous variables influenced the outcome or the dependent variable. These tenets are consistent with the study's goal of determining which exogenous variables, such as TPACK, school culture, and ICT literacy skills, influenced the dependent variable, which is the technostress. Figure 1. Shows the hypothetical model developed in the study.
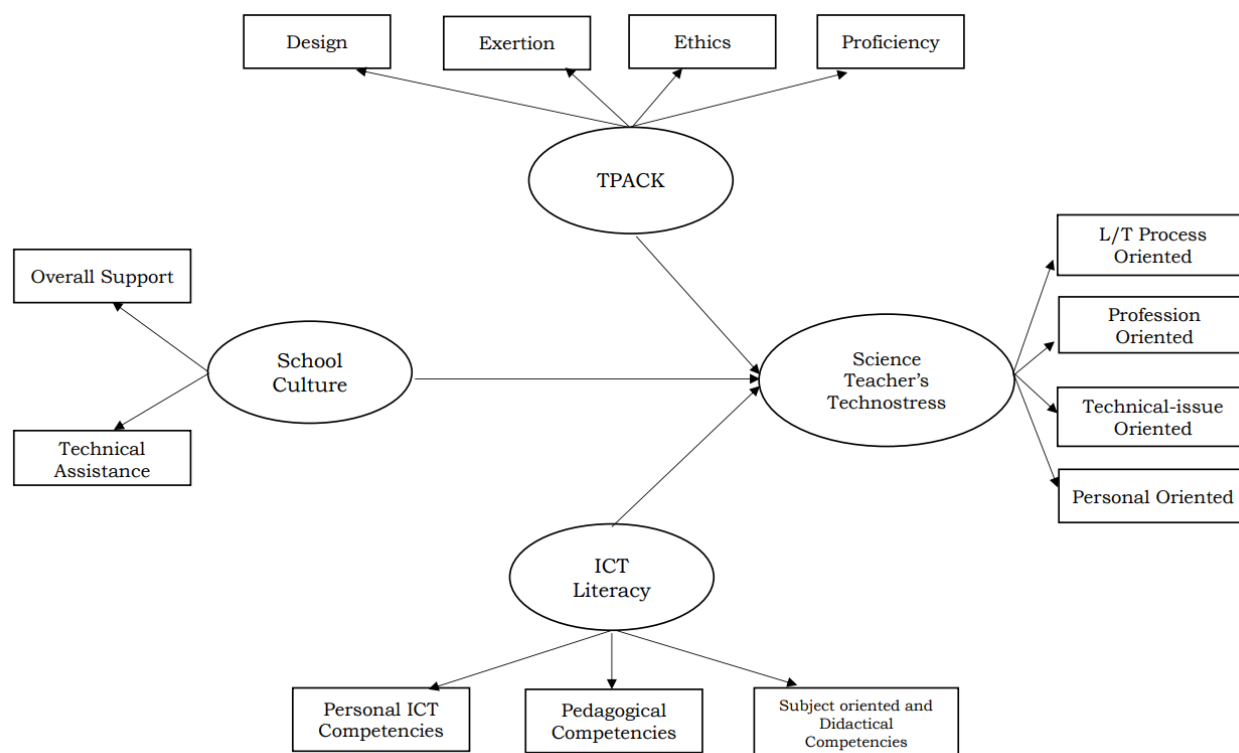
Figure 1. Hypothetical Model

2. Participants

The participants of the study were the 320 high school science teachers employed in the School Year 2021-2022 of the School Divisions of Bukidnon, Malaybalay City, and Valencia City. Schools were chosen primarily based on their population in their respective school districts. The participants of the study were represented by the population of teachers from big, medium, and small schools. Infrastructural facilities and equipment such as interactive boards, broadband internet connection, on and e-learning resources have all been found to be rarely and mostly available in the said locations.

Moreover, during the pandemic, Science teachers were given the same possibilities for up-skilling and retooling through a series of webinars organized by the division, region, and central office. Most of the training focused on improving teachers' readiness and competence in dealing with the demands and challenges of the school's distance learning modality, the use of contextualized learning materials, and the effective use of various virtual platforms and applications that can be of great assistance during the pandemic.

3. Instruments

This study utilized four (4) sets of questionnaires. These are the Teachers' Technostress Levels Defining Scale (TTLDS) by Çoklar, Efilti, & Sahin (2017); Techno Pedagogic (TPACK) Education Proficiency Deep Scale by Yurdakul, (2012); Teacher Technology Questionnaire (TTQ) by Lowther and Ross (2000); and the Level of ICT skills (Paglinawan, 2015) with some revisions to fit the current study to collect data. The questionnaires were adapted from various authors which used the Likert scale to measure the variables. Necessary revisions or modifications have been done to best fit the purpose of this study. The questionnaires used in this study were presented and approved by the panel of experts for validation.

In terms of reliability, the questionnaires were administered to 50 teachers at the College of Education in Bukidnon State College during the school year 2020–2021. The questionnaires were completed by the respondents using Google Forms. All the instruments have excellent reliability, and internal consistency as the survey had Cronbach's alpha values of 0.96 for TTLDS, 0.96 for TPACK, 0.96 for TTQ, and 0.96 for the ICT levels, respectively.

4. Data Analysis

The following statistical tools were utilized carefully during data analysis to provide appropriate answers to the different research problems of the study: a.) *Mean and standard deviation.* These statistical tools were used to determine and describe the levels of technostress, TPACK, school culture, and ICT l, literacy of science teachers. This helped to answer research problems one (1) to four (4): *b.) Pearson Product Moment Correlation.* This was used to determine and describe the significance of the relationship between the independent and dependent variables. This addressed the research problem five (5): *c.) Multiple Regression.* This statistical tool was employed to determine which among the exogenous variables: TPACK, school culture, and ICT literacy influenced the technostress of science teachers. This addressed the research problem six (6); *d.) Structural Equation Modelling.* This statistical tool was used to assess all the hypothesized models' interrelationships and determine the model that best fits the technostress of science teachers. In evaluating the goodness of fit of the models, the following indices were computed: Chi-square over the degree of freedom (CMIN/DF), Tucker–Lewis Index (TLI), Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), and P-value. If its model values consistently fall within the acceptable condition recommended in all standard indices, then the generated structural model is good. For instance, the CMIN/DF must be less than 2; the p-value must be greater than 0.05; the RMSEA must be less than 0.05; and the remaining indices: NFI, TLI, CFI, and GFI, must be greater than 0.95.

Conclusion

The following conclusions are drawn based on the findings of the study. The level of technostress, TPACK, school culture, and ICT literacy skills are found to be much observed, felt, and performed by science teachers during the pandemic. During the pandemic, the technostress of science teachers is positively and significantly associated with TPACK, school culture, and ICT literacy skills. The results show that subject-oriented and didactical competencies and technical assistance contribute to science teachers' technostress. Thus, these two essential factors best predict teachers' technostress. TPACK and ICT literacy skills are strong determinants of science teachers' technostress during the pandemic.
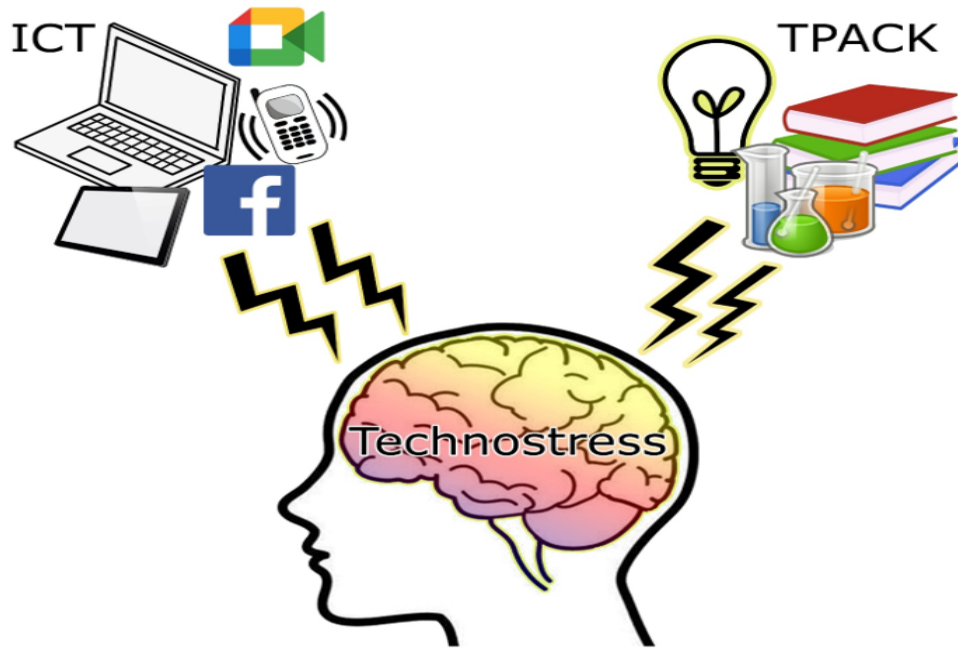
Figure 2. The Science Teachers' Technostress Model

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Internationalization Strategies in "Double High" Schools

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Abstract

The internationalization strategy of dual-high schools refers to how higher education managers of a country, a region, or a school use different models and adopt different methods to achieve international educational goals, economic goals, and social goals. This study adopted the method of random stratified sampling and used the questionnaire survey method to select two universities from 56 double-high schools in the east, west, south, north, and central regions of China as the survey objects. Conduct a questionnaire survey on the strategic connotation, strategic construction, strategic measures, strategic concepts, and difficulties of strategic implementation of dual-high schools. Data analysis showed that the internationalization strategy of dual-high schools is still in the period of "institutional strategic planning". Although there was a definite international strategic plan and presentation, it only stayed on paper. To achieve this strategic goal of internationalization, the researchers concluded that dual-high schools need to have an awareness of international development, implementation of an international strategy, introduction of international courses, exchange mechanisms and supporting funds for international students, and an international vision at the principal level. The study provided a reference for internationalization strategies for managers of similar schools.

Keywords: Double High Schools, Strategic Connotation, Strategic Construction, Measures

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Introduction

In 2019, the State Council of China issued the National Vocational Education Reform Implementation Plan ". The plan proposed to implement the plan for high-level vocational schools with Chinese characteristics. The Ministry of Education and the Ministry of Finance would jointly study and formulate rules and implement them jointly. Leading reform, supporting development, Chinese characteristics, and world-class higher vocational schools. Referred to as " double high schools", the strategic goal of these schools was to cultivate a group of professional high-tech talents and enhanced the international competitiveness and international influence of China's higher vocational education.

The connotation of internationalization strategy

Foreign scholars had studied the connotation of the internationalization of higher vocational education in terms of the relevant objects and measurement standards of the internationalization of higher vocational education. For example, scholars such as Allem and Watt had studied the object and content of the internationalization of higher vocational education and proposed that the connotation of the internationalization of higher vocational education is the various activities, programs, and services that is related to international research（Dan Wang.2019）, international educational exchanges, and technical cooperation. The objects of internationalization of higher vocational education were institutions, courses, teachers, and international students. The standard of internationalization development was universality, communication, and openness. Xing Huang (2019) believed that the connotation of the internationalization development of dual-high schools included four aspects: international mobility of students, internationalization of courses, education for international students in China, Chinese and foreign students and cooperation in Running Schools.

International strategy construction

Foreign scholars mainly studied the internationalization strategy construction of higher vocational education from the four levels of colleges, teachers, students, and social production, put forward the implementation path of internationalization development, and constructed the internationalization strategy of higher vocational education For example, scholars such as Jane Knight had conducted research on the international development models of vocational education in different countries such as community colleges in the United States and TAFE vocational colleges in Australia and believed that the international development of higher vocational education requires different interest groups like students, teachers, trainers, and employers actively participate in and seek international cooperation. Therefore, it was necessary to guide teachers to participate in international teaching, research, and practice, cultivate students' cross-cultural communication skills and international literacy, and then improved the internationalization level of higher vocational education. Dunrong Bie (2022) believed that the internationalization strategy construction model of dual-high schools included " bringing in" and "going out" simultaneously, international innovation of academic organization mechanism, and international high-end internationalization expand.

International strategy

Strategy originally used in the military, also known as "military strategies" is a strategic guide to achieve the established military and political goals, based on the subjective and objective conditions of military struggle and the law of development and change, aiming at

military struggle of comprehensive planning and deployment, and used to guide military development. Later, the word "strategy" was extended to the field of education For example, the American scholar Childress divided higher vocational education internationalization strategies into three types: the first was type A "institutional strategy" "planning", that is, the school incorporates internationalization into it when formulating the development strategy of the institution, and there was a definite internationalization strategic plan and statement, but it only stayed in writing; the second type was "clear document planning" of type B, that is, internationalization The goals and tasks could be clearly and expressed in the document planning, with long-term international strategic planning, but lack of short- term specific strategic implementation plans; The grassroots teaching and academic units of each college implemented the school's internationalization strategy, set up relevant education internationalization departments, and assigned relevant office personnel to handle education internationalization-related affairs. Yupu Zhao (2022) pointed out that the strategic measures for the internationalization of double-high schools included the cultivation of international talents, the improvement of internationalization-related mechanisms, and the continuous improvement of software and hardware infrastructure construction.

Based on the exploration and elaboration of the internationalization strategy of higher education or higher vocational education by different scholars at home and abroad, this research believed that the internationalization strategy of higher vocational education refered to the goal of higher education managers of a country, a region or a school to achieve internationalization. The means of educational goals, economic goals, and social goals, based on the internal and external conditions and environment of international development, and by the law of international development of vocational education, comprehensively plan and deploy international strategic connotations, strategic construction, strategic measures, strategic concepts, strategy implementation dilemma, to guide the development of internationalization strategies of schools in different regions.

Figure 1: Internationalization Strategy Model Diagra

Methods

This study adopted the method of random stratified sampling and used the questionnaire survey method to select 2 dual-high schools from a total of 56 dual-high schools in the east, west, south, north, and central regions of China, and a total of 10 schools were used as the survey objects. Microsoft Excel 2010 software was used for data analysis, and a strategic model for the internationalization of dual-high schools was formulated. In terms of awareness of international development, implementation of international strategies, the introduction of international courses, exchanged mechanism and supporting funds for international students, and international vision at the principal level. The study provided a reference for internationalization strategies for managers of similar schools. Realized the international educational goals, economic goals, and social goals of dual-high schools.

The questionnaire was constructed on Tencent's online platform. Using the 5G network signal, the WeChat application was used to push the questionnaire to the survey respondents, then analyzed and summarized the feedback survey data.

Subject of investigation

The surveyed schools in this study were 10 double-high schools with similar educational types, and the senior managers of the international cooperation and exchange centers of these schools were surveyed. These 10 schools were all members of high-level vocational schools with Chinese characteristics. To protect the privacy of the research subjects, the surveyed institutions used anonymous names, which were called schools A, B, C, D, E, F, G, H, I, and J. The 10 schools were A and B in the eastern region and C and D in the western region. Located in the southern areas E and F, located in the northern areas G and H. I and J were in the central area.

Investigation process

First, added the WeChat accounts of the senior managers of the international cooperation and exchange centers of the 10 dual-high schools. Then chatted with them online to gain a preliminary understanding of the operation of the internationalization strategies of these schools.

The senior managers of the international cooperation and exchange centers of these 10 schools agreed that their schools have the following characteristics: a clear internationalization strategy path, incomplete internationalization curriculum construction, few international students recruited, incomplete strategic planning and Management, the funds provided by the government were insufficient, and the use of funds must be approved at various levels.

Survey tools and data processing tools

The tool used in this study was the WeChat application developed by Tencent, which is a powerful application. For example, you could pay with digital currency which can manage your money, buy what you want, and order plane tickets, train tickets, and hotels. Neng had independently developed an online research tool, which includes a series of expressions that could be described, analyzed, and compared This survey used 5G network signals to send questionnaires to the respondents through mobile phones and they could open the program to

fill in the data online, then the program would automatically save the data. using Microsoft Excel 2010 software for data analysis, Microsoft Excel 2010 contains rich data processing functions and rich charting functions: such as automatically creating various statistical charts. Rich automation functions: auto-correct, auto-sort, auto-filter, etc. The ability of fast and accurate operation and convenient data exchange makes the processing and management of data more intuitive, more convenient, and easier to understand.

Investigation method

This study mainly collected data from the senior managers of the international cooperation and exchange centers of 10 schools through the following methods: First, each senior manager completed an online questionnaire, and these managers involved the director or deputy director of the center. The second was to interview the director of the center to gain an in-depth understanding of the school's internationalization strategy. The third was to discuss the preliminary results of the research with the center director or deputy director of each school. Each object of the survey was filled in the questionnaire according to the requirements Respondents did not need to score, they only need to select answers based on their school's international strategic construction, strategic initiatives, strategic concepts, strategy implementation difficulties, and questions.

Research results and discussion

This part mainly presented the specific survey results on the strategic connotation, strategic construction, strategic measures, strategic concept, strategy implementation difficulties, and problems of dual-high schools, each of which is presented in the form of a percentage. Considering the small sample size of this survey, the findings may not fully represent the real situation of the internationalization strategies of all dual-high schools.

Strategic connotation

In terms of the connotation of the internationalization strategy of dual-high schools, see the figure below.
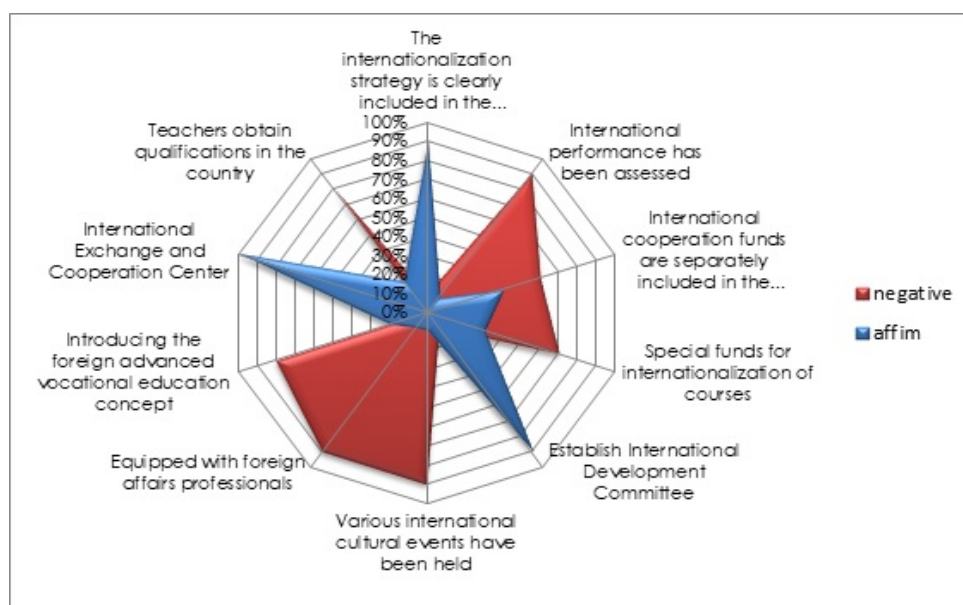
Figure 2: Strategic connotation

90% of the schools had explicitly included the internationalization strategy in the school's development plan, but only 10% of the schools had evaluated the achievements of internationalization development, and 40% of the schools had separately compiled the international cooperation funds into the school's annual budget. 4 schools are ABEF, they were located in the eastern and southern regions of China. 30% of the schools had special funding for the internationalization of courses. There were three ABE schools. 90% of them had established international development committees. However, only 10% of the schools had held various international cultural activities, 10% of the schools were equipped with For foreign affairs professionals, 20% of schools actively introduced foreign advanced vocational education concepts, and 100% of schools had independent international exchange and cooperation centers. Only 20% of teachers were foreign-educated. It was A and G schools.

The possible conclusion was that, although the internationalization strategy of dual-high schools had an independent international exchange and cooperation center, the internationalization strategy was included in the school's development plan, and an internationalization development committee was established, but there were very few full-time foreign affairs personnel, 90%. of schools did not attach importance to the performance evaluation of international development, and very few schools had held various international cultural activities. The cost of internationalization of specially funded courses was very small, and the data proved that:

1. It was still in the "institutional strategic planning", which is, the school incorporates internationalization into it when formulating the college development strategy, and had a definite internationalization strategic plan and statement, but only in writing. (Meng ju. 2019).

2. International cooperation funds and funding costs were directly related to the region where the school is located. For example, the eastern region and the southern region were economically very good, and the teachers had foreign study experience and the city where the school is located. For example, the schools where A and G located were in international metropolises Beijing and Shanghai, these cities wer very open and had many educational resources, so there were many opportunities for teachers to study abroad.

Strategic issues

In terms of the internationalization strategy construction of dual-high schools, see the figure below.
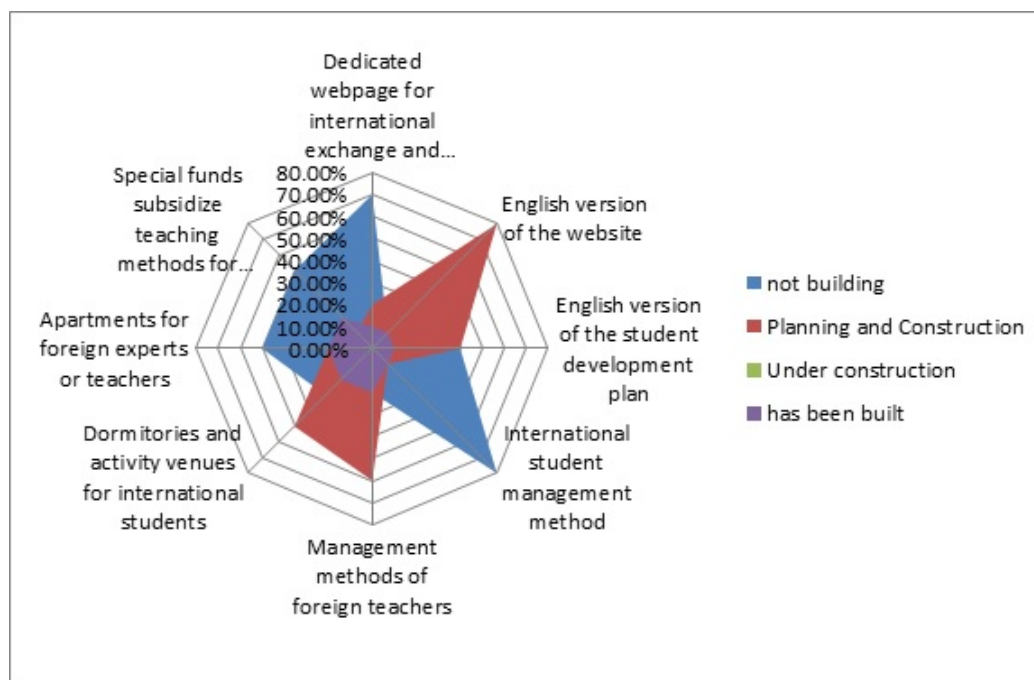
Figure 3: Strategic issues

There were 12 questions in this module, each question had 4 choices, not under construction, planning to build, under construction, and already built, the results were presented in the form of percentages, and the 12 questions were divided into three themes.

1. The theme of the level of informatization construction, only 10% of the total had built a dedicated webpage for international exchange and cooperation projects, only A school, 70% of schools chose not to build, 20% of schools chose to plan and build, and no school chose to be under construction, 20% of the schools were planned and constructed. These two schools were located in the southern region, and 70% of the schools were not under construction; 10% of the schools had completed the English version of the website. This was still A school. %, 10% if not constructed.

These data showed that the informatization construction in the internationalization construction of the dual-high school was very bad. There was no effective use of the informatization platform to build a bridge for cooperation and communication. The internationalization strategy construction was related to the financial level of the city and region where the school was located the way forward for strategic development.

2. On the subject of student and teacher management and construction level, only 10% of schools had completed the English version of the student training plan, 10% of the schools were in the process of completion, 40% of the schools had completed the planning, and 40% of the schools had clearly stated that they were not completed. In terms of management regulations for international students, 10% of schools had been built, no schools were under construction, 10% of schools were planning to build, and 80% of schools chose not to build. For example, in terms of teacher management and construction of foreigners, 20% of schools had been built, and no schools were under construction, 60% of schools were planned to be constructed, and 20% of schools chose not to build. In terms of the provisions for special funds to subsidize teachers to study abroad, 20% of schools had been built, 20% of schools were under construction, 10% of schools were planned to be built, and 50% of schools chose not to build.

It showed that the international construction of double-high schools lacked a corresponding management system for international students, and the lack of a scientific, reasonable, and standardized student management system would inevitably affect the level of international development of double-high schools. At the same time, it also showed that although the regulations on the management of experts and teachers in double-high schools were greater than those on the management of international students, the management and construction level of foreign experts and teachers was not high.

3. The theme of the construction of apartments and activity venues for international students and foreign teachers: 20% of the schools had built apartments for international students and foreign teachers, 10% of the schools were building apartments for foreign teachers, no school was building apartments for international students, and 50% of schools were planning to build apartments for foreign students 20% of schools plan to build apartments for foreign teachers, 30% of schools did not build apartments for international students, and 50% of schools did not build apartments for foreign teachers and activity places.

It showed that in the construction of living facilities, the daily life of foreign students and foreign teachers was very low. The proportion of dedicated apartment construction was relatively low, and it further showed that the importance of effectively achieving the goal of cultivating international talents in learning, communication, reference, and cooperation was not valued. Although there was a definite international strategic plan and statement, it is only written superior.

Strategic measures

Although China's higher vocational education had experienced two decades of rapid development, the exploration of internationalization strategy was still in its infancy. During this period, some international strategic measures had been vigorously implemented, such as hiring foreign language teachers, teachers, or managers to go abroad for professional training, and participating in cooperation projects with international organizations; but at the same time, some important measures that had not yet been implemented had been ignored. International initiatives such as international student study, overseas education, project cooperation, and mutual recognition of credits. This project was divided into two themes, focusing on strategic initiatives and neglected initiatives. There were 4 choices for each question, and each school could only choose one from the four answers of not implementing, preparing to implement, implementing, and implementing Answer questions.

1. The themes of strategic initiatives that are valued were shown in the figure below.
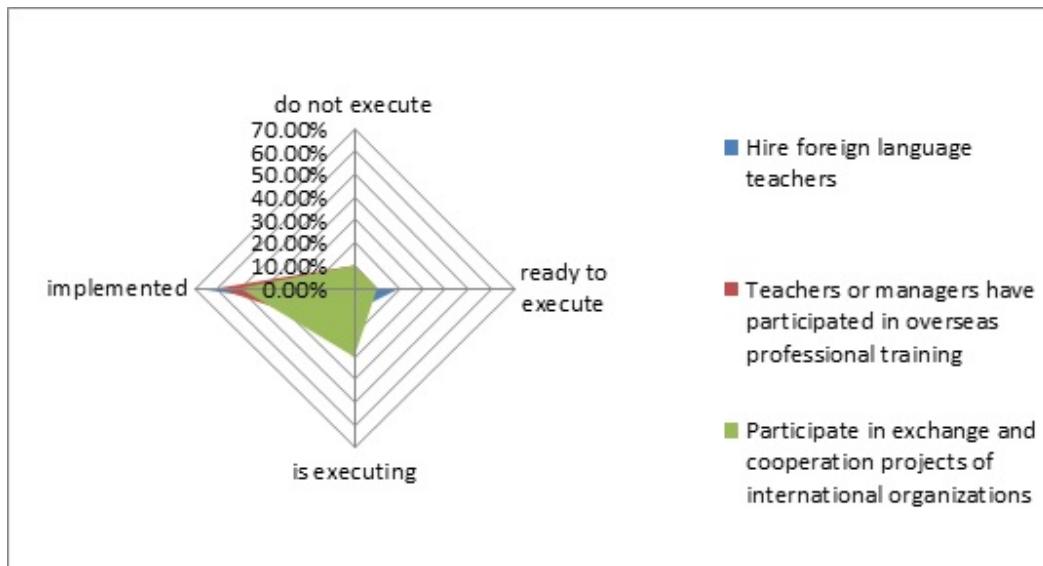
Figure 4: Pay attention measures

Among the many strategic measures for internationalization, 70% of schools with dual high schools were hiring foreign language teachers, 10% of schools were hiring foreign language teachers, 20% of schools were hiring, and no school was not ready to hire. In terms of teachers or managers who had participated in overseas professional training, 60% of schools had implemented it, only 10% had not implemented it, 60% of the dual-high schools had implemented the exchange and cooperation projects participating in international organizations, and 30% were implementing, preparing to implement, and not implementing each 10%.

The above data proved that double high schools attach great importance to hiring foreign language teachers . It attached great importance to the study of foreign languages, provided a better foreign language learning environment for teachers and students, was conducive to promoting in-depth exchanges and cooperation with foreign institutions, sponsors overseas professional training for teachers, and participates in exchange and cooperation projects with international organizations. It also proved that an important strategic measure for the internationalization of double-high schools was foreign languages .

2. The neglected initiative themes were shown in the figure below.
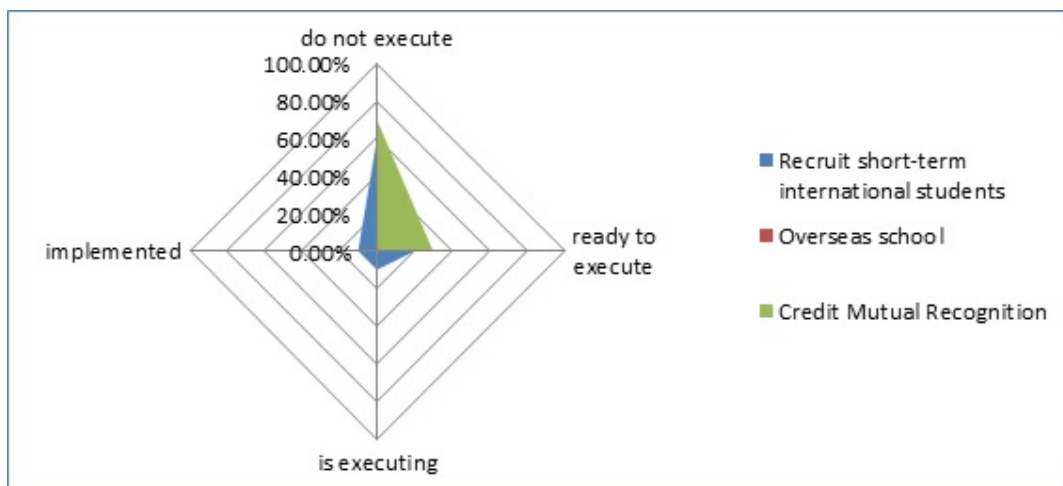
Figure 5: lgnore initiatives

International students studying and running schools overseas should be typical manifestations of the "export-oriented" internationalization strategy. However, the survey showed that 10% of schools recruit short-term international students, 10% of schools were recruiting, and 20% of schools were currently recruiting, 60% of schools did not enroll.

On the issue of running schools abroad, no schools were running schools abroad, 10% of the schools were cooperating, but had not yet recruited students, and 90% of the schools did not plan to run schools abroad.

Such data proved that the international schools of double-high schools were very weak in competitiveness , and they had not yet provided international students with good learning opportunities and living places. Therefore, it was impossible to attract more international students to study at the school. At the same time, the fact that there were no schools currently running schools abroad showed to a certain extent that dual-high schools did not have the conditions and capabilities to run schools overseas, and need to further enhance their international influence and strategic measures to enhance internationalization.

Regarding the issue of mutual recognition of credits, the survey showd that 0% of the schools had exchanged/recognized credits with foreign institutions, 30% of the schools were ready to exchange/recognize credits with foreign institutions, and 70% of the schools would not exchange/recognize credits with foreign institutions. Exchange/Mutual Recognition.

It showed that the dual-high school had not reached a consensus on student training with foreign schools, and lacks the goal of nationalized talent training to solve the problem of mutual recognition of credits, which hindered the international mobility of students and affects the improvement of students' international competitiveness.

Strategic Concept

In the strategic concept module, a total of 5 questions need to be answered, namely, the concept of international teaching reform, the concept of international integration, the introduction of high-quality educational resources, the active absorption of foreign advanced strategic concepts, and the cultivation of teachers with an international perspective. There were only two answers. You could choose, not approve or approve, as shown in the following figure:
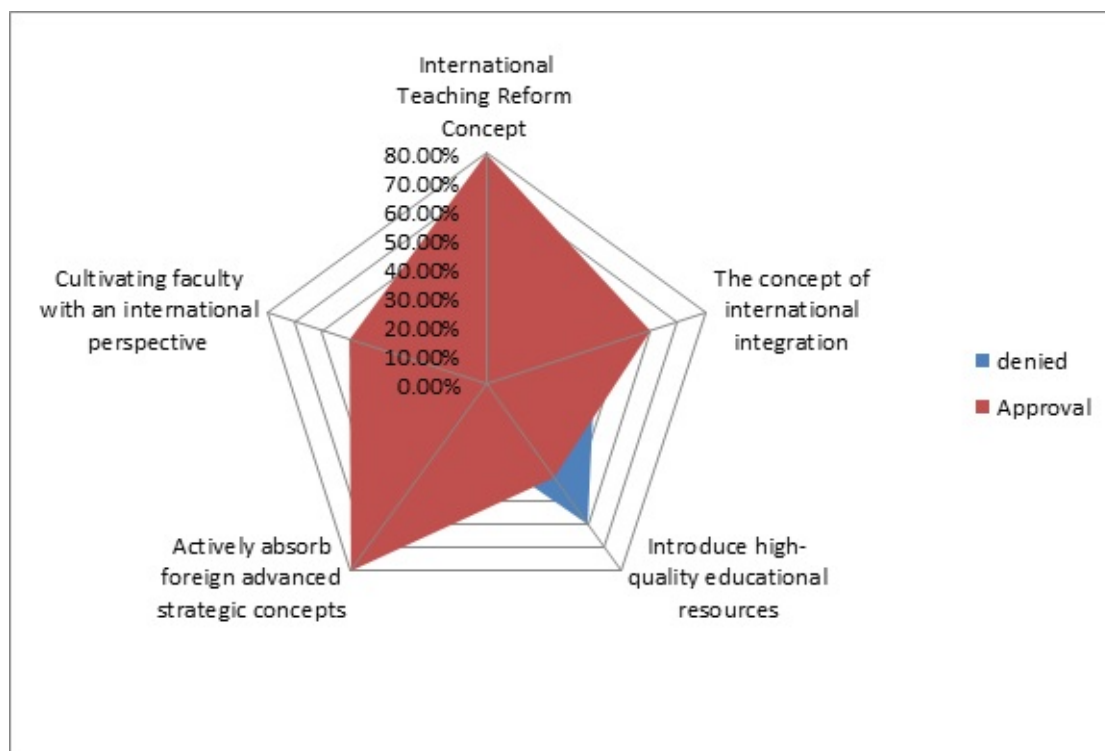
Figure 6: Strategic thinking

According to the survey, in terms of education and teaching reform and professional construction, 80% believe that the internationalization strategy concept promotes education and teaching reform, 60% believe that the internationalization strategy concept is in line with international standards, and 40% believe that the concept of introducing high-quality educational resources is actively absorbed. Foreign advanced strategic concepts account for 80%, and 50% of teachers with an international perspective are trained. These data show that the greatest value of the strategic concept of dual-high schools lies in promoting education and teaching reform; the improvement of the internationalization level of dual-high schools requires the same international strategy. In line with the concept , the dual-high schools recognized the strategic concept, but combined with the strategic measures and strategic construction, they did not translate the concept into practical work. It further illustrates that the dual-high school has a definite international strategic plan and statement, but this argument only stays on paper.

Difficulties and problems in strategy implementation

A total of 10 issues had been designed for the implementation of the strategy, including funding, self-development, professional structure, leadership concepts, foreign exchange, educational sovereignty, quality of students, the region where the school was located, employment, and quality of students. Each school could only select three of these 10 questions. Rounding out the top three were funding, the district the school was in, and the principal's perspective. Specifically as shown below.
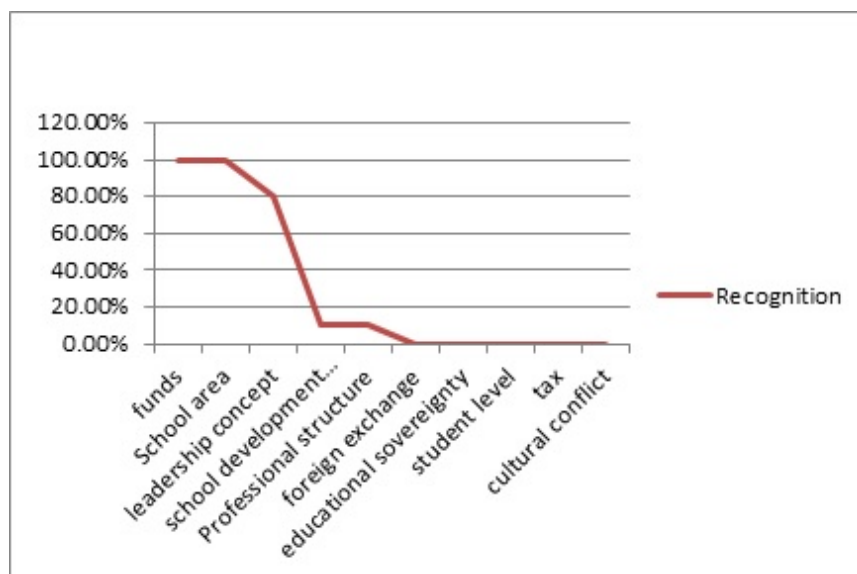
Figure 7: Difficult to implement

Funds

100% of the dual-high schools chose the answer of funding. Combined with several other surveys on funding in the questionnaire, funding was one of the main reasons that affect international exchanges and cooperation, which showed that the international development of dual-high schools was relatively prominent. . It occupied a very important position in the internationalization strategy. However, it was unrealistic for the school to bear the full amount of funds (Heguang Ping.2021).

Many regions and departments lacked supporting preferential systems for cooperation with foreign parties, and the lack of follow-up funds were all obstacles that restrict the development of international education in higher vocational colleges. Driven by the government, schools, social organizations, and other related funds, colleges, and departments could raise special funds through multiple channels and participate in more international cooperation projects to obtain financial support.

The area where the school is located

The recognition rate of the region where the school was located is 100%. This data and many of the above-mentioned survey results also fully illustrated the importance of this issue. It also showed that the eastern and southern regions where the school was located have greater financial support from the government. The degree of openness was very high, and the informatization construction was very complete. Human, financial and material resources were relatively sufficient, and the internationalization strategy of the school was high.

Leadership concept

Leadership concept was an important issue in the process of strategy implementation, accounting for 80%. The survey data related to this include, to a certain extent, these data showed that the current dual-high school leaders' concept of internationalization strategy was still relatively weak, whether the leaders had an international education vision, and the concept of running a school had become the level of the dual-high education internationalization strategy. Important influencing factors.

Research conclusions

The results of this study showed that, at present, the internationalization strategy of dual-high schools was still in the period of "institutional strategic planning". Although there was a definite international strategic plan and statement, it was only written in writing, not implemented according to the plan , and the execution force was not strong. To improve the internationalization strategy level of dual-high schools, it was necessary to consider the ideological, organizational, human, material, create conditions for financial resources and other aspects, implement higher-level and stronger overall planning, absorb the school-running methods and excellent experience of foreign high-level vocational schools, create many high-quality, high-level cooperative education institutions and projects, and form a series of Chinese and foreign schools. Brand majors and demonstration courses and demonstration institutions of cooperative education introduce market funds, support the international development of education, join hands with internationally renowned enterprises, strengthen scientific research cooperation between schools and enterprises, adhere to opening to the outside world, and actively expand international cooperation and exchange classifications to promote the implementation of the internationalization strategy of dual-high schools. Deciphering the real influence of the region where the school was located on the school's internationalization strategy. The senior management of the school need to have the awareness of international development, the execution of international strategy, the introduction of international courses, the exchange mechanism and supporting funds for international students, and the international vision

The government should cultivate the relevant institutional elements of the international strategy of dual-high schools, and optimize the policy and legal environment for international development. Promoting the interconnection of innovative elements such as talent, technology, capital, and information. Making the internationalization of double high schools developed in a healthy, stable, and sustainable direction and release vitality. Realizing the international educational goals, economic goals, and social goals of dual-high schools.

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Classroom Education Management Discipline in Mathematics

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Abstract

In order to ensure the smooth implementation of middle school mathematics classroom education management, this study is based on the analysis of problems and influencing factors in middle school mathematics classroom education management, aiming at finding effective measures of classroom education management. This study takes Junior middle school teachers and students as the research objects, and adopts the research methods of observation, interview and questionnaire survey. It Conducts investigation and research on the behavior of teachers and students and explores the specific reasons that lead to the effective management of middle school mathematics classroom education. Through the research methods of questionnaire and interview inquiry, this paper analyses the existing problems of teachers and students in the management of mathematics classroom education in Junior middle school: first, teachers cannot effectively guide the classroom teaching effect; second, the comprehensive ability of professional teachers is insufficient; third, the polarization of students performance in class is serious; fourth, students excessively rely on teachers for self-management. The main conclusions of this study are as follows: only by constructing a good teacher-student relationship, updating the concepts of education management, optimizing the methods of education management, innovating the mode of education management and improving the professional quality of teachers, can the quality of mathematics classroom education management in middle schools be improved. This study provides a research direction and management method of middle school classroom education managers, promotes the smooth implementation of classroom education management, and provides a theoretical basis for exploring and developing classroom management programs.

Keywords: Middle School Mathematics, Classroom Education Management, Quality

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Introduction

Classroom is the main position of education and teaching activities and the most frequent place for teacher-student interaction. Good classroom education management plays an important role in improving the quality of teacher education and teaching, promoting the all-around development of students and establishing a good teacher-student relationship. However, due to various reasons, the students in the classroom education management are not concentrated in class, and teachers and students cannot communicate effectively. Some teachers or students ignore the classroom management order and other problems still exist from teachers, students, the environment and others. These problems have seriously affected the development of the teacher-student relationship.

With the development of education and teaching, the definition of classroom education management has a deeper connotation. As an important stage of classroom education management, mathematics classroom education management in middle school plays a vital role in the development of students. In order to manage mathematics classroom effectively, it is necessary not only to define the management purpose and formulate scientific management methods, but also to create a good classroom management atmosphere and accurately analyze the classroom behaviors of teachers and students in the process of classroom management. In addition, in the process of classroom management, teachers and students should maintain an equal and friendly relationship, change students' passive acceptance of knowledge to active acceptance of knowledge, mobilize students' enthusiasm to participate in classroom management, and improve students' self-management ability. Through an in-depth analysis of the current situation of mathematics classroom education management, this research explores the deficiencies in the management of mathematics classroom education in middle school, and finds that the main reasons for the failure of classroom education management are from both teachers and students. Therefore, the focus on analyzing classroom education management from the two dimensions of teachers and students is the logical starting point for this research to carry out in-depth research, and also provides a thinking paradigm for the research of classroom education management. It provides a reference for the implementation of classroom education management.

Scholars have conducted in-depth research around the issue of "what is effective classroom management". Johnson (1970) believes that classroom education management is a process of establishing and maintaining good classroom order to achieve educational goals through teacher management. Good,t.l. &Brophy, J.E (2009) think "looking in the classroom" can be understood from the following two parts: First, teachers stimulate learners' coordination and cooperation ability and learning activity, and create a reasonable management model. Second, all activities of teachers and students in the classroom are not affected by external factors, and can orderly promote the process of teaching. Classroom management is a critical component of effective instruction and a prerequisite for a positive classroom climate (Brophy, 1985; Gage, Pryanowski, & Hirn, 2014; Mitchell & Bradshaw, 2013). Nicholas A. Gage, HyunSuk Han, Ashley S. MacSuga-Gage, Debra Prykanowski, &Alexandria Harvey (2018) also state in their article "Classroom management is a prerequisite for effective instruction". Nada Jaber Alasmari, &Abeer Sultan Ahmed Althaqafi (2021) think teachers' proactive and reactive classroom management strategies are a significant component of teaching effectiveness. Teachers need to develop such strategies to structure a positive classroom environment. In addition, teachers' self-efficacy beliefs concerning their classroom management strategies are equally significant. Jonathan Ryan Davis (2018) indicates that teachers' actions in their classrooms have twice as much impact on student achievement as

assessment policies, community involvement, or staff collegiality; and a large part of teachers' actions involves the management of the classroom (Marzano, 2003; Marzano & Marzano, 2003). Shi Liangfang, &Cui Yunguo.(2009), a Chinese scholar, point out that classroom edfollowsucation management refers to teachers' management and control of various factors in the teaching classroom to maintain the classroom teaching order and effective implementation of teaching activities. Wang Yuping (2022) believes that classroom management is the key to ensuring that teachers can effectively complete their teaching tasks. The transformation of classroom management requires the establishment of a modern education concept, the cultivation of a good teacher-student relationship, the rational arrangement of learning tasks, and the creation of a good classroom atmosphere.

This research takes the classroom education management behavior of teachers and students of B middle school in area A as the research object, aiming to investigate the influence of classroom education management of middle school mathematics on students' learning behavior. Specifically, this study attempts to answer the following questions.

1. Can teachers effectively guide the effect of classroom teaching?
2. Can the comprehensive ability of professional teachers meet the requirements of classroom education management?
3. Can students manage themselves in the classroom?
4. What intervention measures can be proposed to improve the effectiveness of mathematics classroom education management in middle school?

Methodology

This research will use questionnaire and interview to investigate the students and teachers of B middle school in area A.

First, research on students:

The researchers selected 100 students (n=100) from B middle school in area A as the subjects of the questionnaire survey by adopting the method of random sampling through questionnaire survey. The 100 participants included 56 male students (n=56) and 44 female students (n=44). Their ages ranged from 13 to 15. Their grades are from grade 1 to grade 3 of B middle school in area A. Through the investigation, we can understand the problems and the proportion of students' influence which students have in the management of mathematics classroom, analyze the positive and negative factors that affect the management of mathematics classroom in middle school, and finally propose solutions.

The questionnaire consists of 3 kinds of questions. After obtaining the formal consent of the school, the survey was conducted on the basis of protecting the personal information of the interviewees. The questionnaire is divided into three parts: (1) students' background information, (2) students' attitude towards mathematics class and mathematics classroom management, and (3) students' behavior in mathematics classroom education management. In the background information section, students' personal information (grade and gender) is inquired. The second part consists of five questions, and the third part consists of three questions.

The second part is as follows,

1. Do you like mathematics?
2. Are you afraid of the mathematics teacher?
3. Do you like the management style of mathematics classroom?
4. Do you often arrive late and leave early in mathematics classroom?
5. Is mathematics classroom management helpful to your learning?

The third part is as follows,

1. Do you chat with your classmates in class and don't listen carefully?
2. Will you be focused by teachers in class?
3. Do you follow the classroom rules?
4. Do you think teachers will treat students differently according to their academic performance?

Second, interviews with teachers:

The researchers interviewed 20 teachers (n=20) from B middle school in area A, including 10 men (n=10) and 10 women (n=10). Their teaching experience ranges from less than three years to more than 20 years. They all have bachelor's degrees, and six of them have master's degrees. All participants give mathematics subjects in different grades from grade 1 to grade 3. The actual average teaching time of 10 participants is less than 15 hours per week, 9 participants only 11-20 hours per week, and 1 participant more than 20 hours per week. Through interviews, we can understand the current situation of teachers in classroom education management in middle school from the perspective of teachers, and understand the proportion of teachers' influence in classroom education management, analyze teachers' professional background, management skills, management attitudes and methods, and find ways to improve teachers' classroom management skills.

The interview is divided into two parts: (1) background information, and (2) teachers' views, experiences and abilities in classroom management. The background information is inquired about the participants' personal information (age, gender, education background, working years, graduation school, and graduation major). The interview consists of 10 questions.

1. Do you emphasize classroom discipline in the first class?
2. Do you work with students to formulate classroom rules?
3. Do you attach importance to the establishment of a good teacher-student relationship?
4. Do you use inappropriate language for management?
5. Have you systematically learned the knowledge and skills of teacher education management?
6. Will you use the power of teacher to force students to obey yourself?
7. Do you care about the students with poor academic performance?
8. Do you attach importance to classroom education management?
9. What is the biggest difficulty you face in the process of education management?
10. Have you always been learning to improve your management ability?

The data collection lasted for three days, from September 6 to 8, 2022. The questionnaire was retrieved by a researcher with the help of the principal on September 9, 2022.

Results and Discussion

This research takes students' and teachers' behaviors and attitudes in classroom as the analysis object respectively, and uses statistical analysis methods to analyze the survey results to determine the impact of students and teachers on the teaching quality of mathematics classroom.

Table 1 Basic information of students

	Category	Number of people	Percentage
gender	male	56	56%
	female	44	44%
grade	freshman	26	26%
	sophomore	41	41%
	junior	33	33%

Table 2 Basic information of teachers

	Category	Number of people	Percentage
gender	male	10	50%
	female	10	50%
age	under age 30	3	15%
	age 30-45	8	40%
	above age 45	9	45%
teaching years	Under 3 years	3	15%
	4-10 years	6	30%
	11-20 years	5	25%
	above 20 years	6	30%
education	bachelor	13	65%
	above master	7	35%

The implementer of mathematics classroom education management in middle school is teachers, and the object of implementation is students. Successful classroom education management should have a clear education management goal, appropriate education management methods, establish a good relationship between teachers and students, create a comfortable education management environment, and achieve the unity of classroom education and classroom management. Teachers should change the traditional management concept, improve the management consciousness and correct the management attitude. Students should improve their self-management consciousness, improve their self-management ability, and establish a dual subject teacher-student relationship for management.
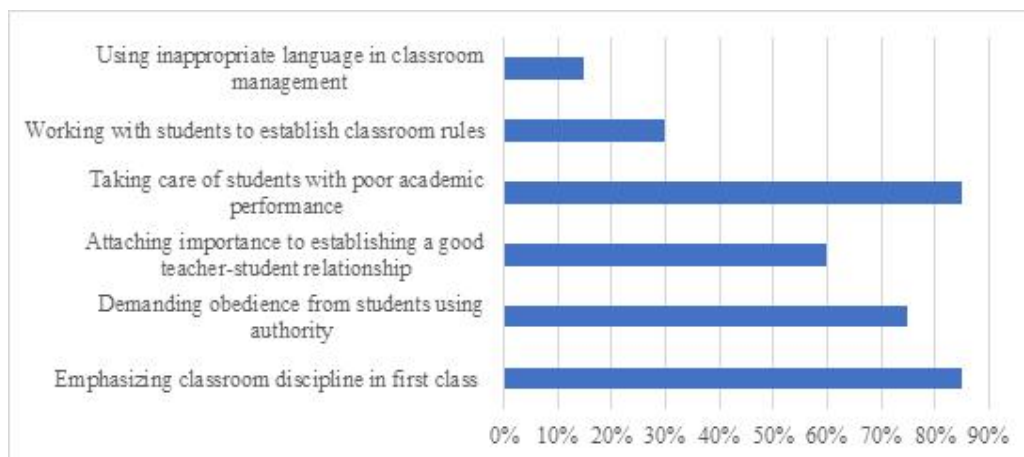
Figure 1: A survey of teachers' classroom management style

Figure 1 shows that teachers in B middle school in area A cannot effectively guide classroom management. The survey result shows that 85% of teachers emphasize classroom discipline in the first class, 75% using their authority to require students to obey their own requirements, 60% attaching importance to establishing a good teacher-student relationship, and 85% caring about students with poor academic performance. However, the proportion of whether to formulate classroom rules together with students and whether to use inappropriate language for classroom management is low, which is 30% and 15% respectively.

This fully shows that in the process of classroom education management, teachers have been in an active position and students have been in a passive position. There is no equal relationship between teachers and students, which leads to students being unable to use their subjective initiative in learning and fully showing their roles in classroom management, leading to teachers' low efficiency in classroom management.
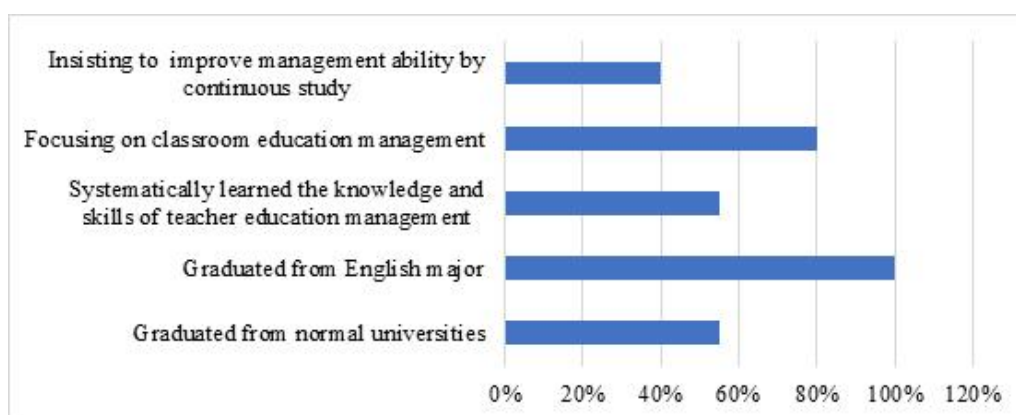
Figure 2: Survey of teachers' comprehensive abilities

Figure 2 shows that teachers lack comprehensive abilities in the process of classroom management. The survey results show that 55% of mathematics teachers are from normal universities. For teachers graduated from non-normal universities, they have mathematical expertise, but lack the comprehensive abilities of professional teacher.

The investigation on teachers' comprehensive abilities is mainly reflected in professional knowledge, teachers' management ability, teachers' management attitude, learning of management ability and teachers' management concept. 100% of teachers graduated from

mathematics, 55% systematically learned teachers' education management knowledge and skills, 80% attaching importance to classroom education management, and 40% insisting on continuous study to improve classroom management ability.

This fully shows that classroom education management has a high demand on teachers' comprehensive abilities. Teachers need not only to understand the knowledge content of mathematics, but also to understand the comprehensive knowledge of psychology, pedagogy, management and other aspects. Teachers' comprehensive abilities directly affect the effect of classroom education management. Therefore, teachers should constantly improve their comprehensive management abilities and optimize the concept of education management.
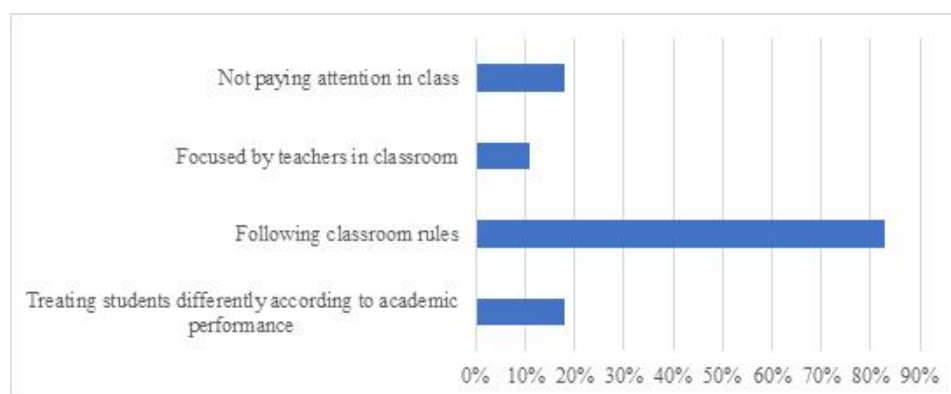
Figure 3: Investigation on the polarization of students' classroom performance

Figure 3 shows the serious polarization of students' performance in class. The survey results show that 18% of the students think that teachers treat students differently according to their academic performance, 83% abiding by the classroom rules, 11% thinking that they are focused by teachers in class, and 18% not paying attention in class.

This fully shows that some teachers treat students differently according to students' performance in the class and carry out differentiated management on students, which is specifically shown as follows: teachers have a mild attitude towards students who obey classroom management and like learning mathematics. They have established a good teacher-student relationship with each other; On the contrary, teachers are strict with students who have weak mathematical foundations and lack learning motivation in the class, which leads to some students' resistance to teachers. It is difficult for teachers and students to establish a good teacher-student relationship, and students are unwilling to cooperate with teachers in classroom education management.
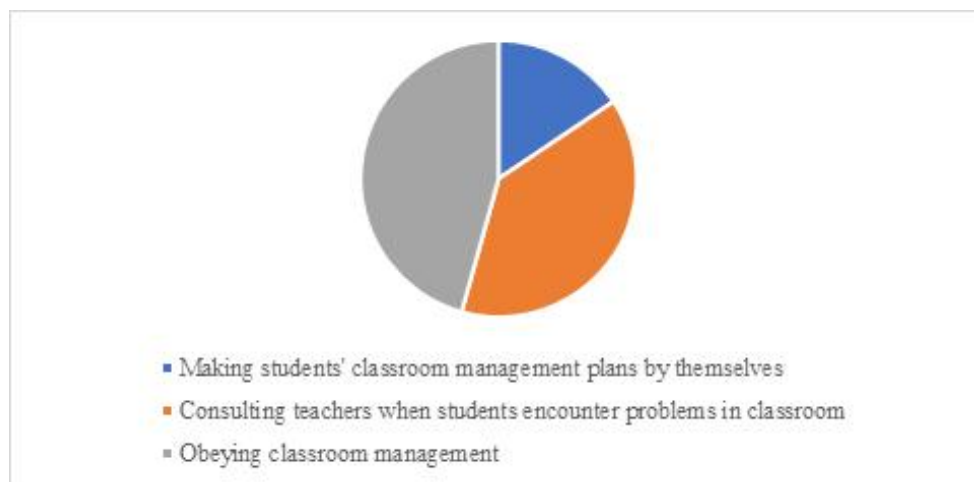
Figure 4: Investigation on students' self-management

Figure 4 shows that students rely too much on teachers for self-management. It is investigated from three aspects. One is whether students will make management plans by themselves. Another is whether students will ask teachers for help when encountering problems in class. The last one is whether students will obey teachers' classroom management. The results show that 27% of students make classroom management plans by themselves, 67% consulting teachers when encountering problems in the class, and 79% obeying classroom management, which fully shows that middle school students rely on teachers excessively in the process of classroom management.

Because of their younger age, the students have not developed their own minds of self-management totally. On the contrary, they have developed the habit of "relying on their parents at home and relying on their teachers at school" since childhood. They have even been overindulged by families and teachers since childhood. The students have lost the ability of self-evaluation, self-awareness and self-control, and they fully follow the guidance and management of teachers at school. In this case, classroom education management will have a high requirement on teachers, and teachers must always maintain the correct direction of guidance. If the direction of teachers' guidance deviates, it will inevitably lead to deviation in students' behavior, affecting the correct cultivation of students' world outlook and values.

Conclusion

Through the investigation of mathematics teachers and students in B schools in area A, this study found that mathematics teachers play a decisive role in education management and directly affect the effect of education management. Although students are the objects in the process of education management, whether students abide by classroom management in the process of education management is also an important factor affecting education management. Therefore, in the process of teaching classroom management, teachers should change traditional classroom management ideas, master scientific classroom management skills, and form a set of reasonable management methods. Students should abide by the classroom management system and obey teachers' classroom management.

1. Teachers should construct a good teacher-student relationship

Teachers' awareness of classroom education management is important. A good way to communicate with students is to establish a good teacher-student relationship. On this basis,

teachers need to establish their communicating concepts, reposition their roles, and sort out the teacher-student relationship. The original role of only lecturing and teaching is adjusted to the role of a multi-dimensional manager, so as to better realize the model of clear rights and responsibilities in classroom management.

2.   Teachers should update the concepts of education management

The concept of teacher's classroom education management directly affects how teachers conduct classroom education management. A qualified classroom education manager should first have a scientific education management concept that meets the requirements of the development of society. Teachers should establish the concept of "management is education" and adhere to the principle of equality between teachers and students. However, in the actual process of classroom management, teachers often ignore other behaviors such as students' speaking or sleeping in the classroom and continue to teach their scheduled teaching content. There is no classroom interaction between teachers and students, which leads to difficulties in classroom education management. The concept of classroom management for teachers should keep improving. In addition to returning to classroom teaching, it is also necessary to arrange a teaching schedule, reasonably use multimedia courseware, and focus on an efficient classroom.

3.   Teachers should optimize the methods of education management

Teachers use inappropriate language, body language, etc. in classroom education management, and criticize students incorrectly in the classroom, which causes students to be not interested in mathematics classes, and also causes students to be tired of classes and learning.

Teachers force students to accept and obey too many instructions and criticisms, exerting a negative influence on students. Frequent negative verbal reminders will affect the effect of classroom management, reduce the efficiency of classroom teaching, and fail to establish a harmonious and relaxed classroom teaching atmosphere.

Teachers need to have their own set of effective management methods to realize students' self-management, cultivate students' learning ability and mutual cooperation abilities, and promote the development of education and teaching. As a manager, teachers need to participate in students' activities, interact with students, and understand the deficiencies in education and education management so as to improve their own classroom management ability and stimulate students' initiative.

4.   Teachers should innovate the mode of education management

Middle school students are more likely to form a healthy psychological state when they are in a good teacher-student relationship, and then they can think rationally, establish their own logical relationship, and actively face learning life. Therefore, in the process of classroom education management, it is advocated to establish "a dual subject teacher-student relationship mode". That is, in mathematics classroom management, teachers, as one of the subjects, play the role of educators. And students, as the main body of learning, play the role of learners and classroom masters. However, in the actual process of education management, teachers and students often ignore this dual subject teacher-student relationship mode. Students' awareness of self-management is weak, and students completely rely on the

guidance and management of teachers, which leads to low autonomy of students in classroom management.

5.   Teachers should improve the professional quality

Some mathematics teachers, who do not graduate from normal universities, learn less about pedagogy, psychology and other courses. Teachers' professional skills are weak, and they lack the educational management skills that teachers should have. So, teachers should improve the skill of teaching, managing classroom, and caring for students. Teachers should manage classroom using professional education management concepts.

The results of this study are not only applicable to the classroom management of mathematics in middle school, but also applicable to the classroom management of other disciplines in middle school. It is not only a reference for the current classroom management, but also a certain reference value for future classroom management.

Acknowledgment

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Politeness Principle in Business Correspondence and Language Teaching

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Abstract

One of the indispensable contributors for effective communication is politeness. It works as the lubricant to reduce frictions especially in business conversations. Politeness is also a compulsory lesson for language learners to take since it can bridge people from diverse backgrounds together. This essay firstly makes a brief review of the significant development of Politeness Theory. By sheding the light on Brown and Levinson' s Politeness Theory, the essay discusses its applicability in western context and eastern context since the understanding of face needs can be different for people from diverse cultural backgrounds. The essay then relates politeness to business correspondence to emphasize its importance for language learners. Based on Brown and Levinson's Politeness Theory, an analysis of Chinese and native speaker's writing style has been presented as an example. The importance of teaching politeness, one of the speech acts, to language learners is discussed in the end. It is suggested that language teachers should not only introduce politeness principles but also hold various kinds of awareness-raising activities for learners to be immersed in specific contexts.

Keywords: Politeness Principle, Business Communication, Language Teaching, Pragmatics, Face Theory

Introduction

Politeness is a compulsory lesson for language learners to take since it can bridge people from diverse backgrounds together. In the following parts, the essay firstly makes a brief review of the significant development of Politeness Theory and then discusses its applicability in western context and eastern context. Followed by an analysis of Chinese and native speaker's writing style, this essay proposes suggestions for future teaching of politeness.

Definition of Politeness

The flourishing development of politeness theory has created miscellaneous definitions of politeness. Lakoff (1975: p. 64) defines it as the way to "reduce friction in personal communication". Soon after, Leech (1983: p. 64) proposed that being polite is to avoid conflict strategically and politeness "can be measured in terms of the degree of effort put into the avoidance of a conflict situation". Brown and Levinson (1987: p.1) then made the face theory prevailing by suggesting that politeness is "a complex system for softening face threats". Except for all these mentioned above, other researchers have developed their own versions of politeness such as Ide (1989), Kasper (1990) and Eelen (2001). In general, it is believed that to be polite means a person need to stay kind, friendly, respectful, considerate and tolerant. Although there exists various viewpoints of politeness, they all share the consensus that politeness as a type of speech acts, is an important part of pragmatics to avoid conversational conflicts and thus promote smooth communication.

Review of Politeness Theory

One of the most remarkable theories related to politeness is developed by Brown and Levinson in 1987. In 1967, Goffman introduced the concept of 'face' which is described as "the positive social value a person effectively claims for himself by the line others assume he has taken during a particular contact" (p. 213). Brown and Levinson then borrow from this notion and present their understanding of 'face' as "the public self-image that every member wants to claim for himself" and things which are emotionally invested, and "can be lost, maintained, or enhanced", and must be invariably kept in mind when interacting with others (1987: p. 61). They comp up with the concept of 'model person' which is a competent adult who is inclined to preserve his face (Jansen & Janssen, 2010: p. 2533). Brown and Levinson assume that the face of a person will be threatened as long as he is involved in communication.

When speech acts are performing in the face-threatening way, two types of linguistic actions to convey politeness will be shown: positive politeness and negative politeness. In terms of Curtone (2011), positive politeness motivates the sense of membership among interlocutors. Interlocutors who expect to be favored by others tend to take positive politeness strategies to show intimacy and solidarity. Negative politeness which stands for non-encroachment and social distance can be found in speakers who would like to preserve independence (Flowerdew, 2013).

Brown and Levinson suggest fifteen positive politeness strategies (as cited in Flowerdew, 2013: p.108):
  1. Notice, attend to H (hearer)
  2. Exaggerate (interest, approval, sympathy with H)

3. Intensify interest to H
4. Use in-group identify markers
5. Seek agreement
6. Avoid disagreement
7. Presuppose/raise/assert common ground
8. Joke
9. Assert or presuppose S's (speaker's) knowledge of and concern for H's wants
10. Offer, promise
11. Be optimistic
12. Include both S and H in the activity
13. Give (or ask for) reasons
14. Assume or assert reciprocity
15. Give gifts to H (goods, sympathy, understanding, cooperation)

Controversies on Politeness Model

Although the politeness model of Brown and Levinson has provided strategies for interlocutors to mitigate the force of face-threatening (Al-Hindawi, 2016), it still receives considerable criticism from other researchers. Brown and Levinson hold the view that their politeness model is universal in language use and applies to cultures outside of the domain of Anglo-Saxon (Flowerdew, 2013). Every person involved in a conversation is an independent individual seeking for individual rights (Brown & Levinson, 1987). In this light, the explanations of face needs tend to be individualistic which represents the individualism in the western culture. However, different cultural backgrounds produce distinct politeness (Chang, 2008). When communicating with people from diverse backgrounds, it is of great significance to take the culture behind into account to avoid cultural conflicts and discomforts. Researchers like Fukada and Asato (2004: p. 1992) therefore questioned about the universal applicability of this politeness model since the space for variation among other cultures is absent. For instance, 'face' in eastern culture is explained as "the respect of the group for a man with a good moral reputation" (Cheng, 2012). Collectivism, which is contrary to individualism, is the symbol of eastern culture. Eastern people get used to connect themselves to the family, the social circle and the working sites, chasing for the feeling of being accepted by the main stream. The emphasis in eastern interactions is to keep up the harmony by affirming and ratifying the existing relationship (O'keeffe, Clancy & Adolphs, 2011). Those appropriate speech acts to keep face in western world may be seen as improper, selfish or eccentric in eastern culture. And vise versa. In this vein, the cultural conflicts between the west and the east bring the claim of wide universality of this politeness model in question. Also, the conflicts demonstrate that the politeness theory of Brown and Levinson (1987) may not be a panacea in communication occurring in contexts other than English.

The significance of the politeness model proposed by Brown and Levinson in English speaking countries is undoubted. It is widely utilized in studies of comparing intercultural differences from the aspect of the perceptions of politeness in speech acts (e.g. House & Kasper, 1981; Blum-Kulka, Shoshanna, Juliane, Gabriele, House & Kasper, 1989). However, although the neglect of cultural characteristics in eastern world has brought questions to its applicability, this politeness model has been employed by a number of Asian researchers in studies related to politeness speech acts in China (e.g. Hong, 1998; Zhang, 2016; Zhou, 2017; Cang, 2019). Surprisingly, there is no discussion in these researches about whether this model is suitable for studying Chinese culture. It seems that researchers consider the use of this theory as default in the field of studying politeness phenomena. It is advised that future

studies can shed light on the reason why researchers take this model as default for politeness analysis, discuss further about its applicability for studying politeness in China, and hopefully develop a new politeness model specializing in Chinese culture.

Politeness in Business Correspondence

Even though the applicability of Brown and Levinson's politeness model in speech acts studies in eastern cultures is questionable in general, taking this model as the analysis method in cross-cultural business correspondence, especially in Chinese and English business emails, is of great significance.

Cross-border business has become the mainstream with the trend of globalization. Since novel technologies have broken the borders, sellers and buyers from all over the world contact each other through business emails. As Mayher (1983: p.1) suggested, writing is the "language choice on paper". For cross-cultural business, the use of proper expressions among various online negotiations is one of the determinants of success. Besides, the use of polite language presents the respectfulness to the culture behind the communicators. Inappropriate use of linguistic knowledge may cause pragmatic failure in the interactions among interlocutors from different cultures. The communication may be seen as impolite or status-incongruent and speakers may be judged unfavorably for their personality (Economidou-Kogetsidis, 2015). Therefore, gaining the knowledge of ways of showing politeness in a certain culture is of great importance in helping establish a friendly relationship and smooth the communication to achieve interests for business.

Since a great number of transactions are conducted between China and other English-speaking countries, Brown and Levinson's politeness model, as an analysis model, provides Chinese email writers with the principles and forms of appropriate language in Anglo-Saxon culture. Also, there are many researches related to the comparison of politeness in Chinese and English business email writing (e.g. Zhang, 2016; Zhou, 2017; Cang, 2019). All these contribute for achieving smooth interactions between the two distinct cultures by putting feet in each other's shoes.

In the following paragraphs, two English emails for establishing business relations will be compared and analyzed in terms of the positive politeness strategies proposed by Brown and Levinson.

Figure 1: The positive politeness strategies proposed by Brown and Levinson.

Dear Miny,

Our company has been the leading importer of Motorcycles for many years. At present, we are interested in extending our range and would appreciate your catalogues and quotations.

If your prices are competitive we would like to place a trial order with you. For your information our market is steady demand, it can provide you with information about our business.

We will appreciate it if you can establish business relation with us.

We look forward to your early reply.

Yours faithfully,

Jojo

(Cited from Zhou, 2017)

This is a reply to the email about establishing business relations from an exporter. Overall, it is loosely organized and presents politeness in Chinese way. First of all, the writer does not state the purpose of writing this email at the beginning. Instead, he explains the intention of building up relations at the end of the email. This is the representation of ways of showing politeness in China. Chinese tend to hide the true desire until the end of a conversation since reserve is a distinctive feature in eastern culture. But in western world, people starts with describing the aim in email writing. The discrepancy of perceiving politeness can bring annoyance and discomfort to the receiver. In addition, the tone of this email is superior. It includes few signs of showing positive politeness. The compliments made in the email center around the writer. Also, the second paragraph solely expressed the writer's desirable benefits, like the competitive price. The possible benefits of the reader is neglected. There is no signs of presupposing the concern for the other's wants. Besides, the strategies of raising common ground and assuming reciprocity are absent. Since the purpose of this email is to seek for cooperation, the use of these two strategies are considered to be helpful for arousing interests for further interactions and facilitating the communication smoothly. Therefore, this email fails to promote effective interaction.

Figure 2: The email fails to promote effective interaction.

Dear Miny,

①We acknowledge with thanks the receipt your email of May 6th, and take the pleasure of establishing business relations with your corporation.

②Your motorcycle products are so attractive that we are confident of securing large orders for you to satisfy the steady increasing need of our market. We shall be obliged if you could send us catalogues and quotations.

③We look forward to your early reply.

Yours faithfully,

Jojo

(Cited from Zhou, 2017)

The second email is unfolded in a clear structure and uses a number of positive politeness strategies. Different from the first one, it starts with claiming the purpose of writing by using a bit exaggerating expressions of approval to the reader, such as "acknowledge with thanks" and "take the pleasure of", which at the same time presents the attitude of optimism. The second paragraph then connects the writer and the reader together and considers the benefit wants of the reader. Also, in order to redress the possible face threat on the reader, the write expresses the inquiry for catalogues and quotations in a modest way. By employing positive politeness strategies, this email has demonstrated the determination of establishing the friendly business relations and respect for each other, which may lay a solid foundation for future communication (Zhou, 2017).

Application to Teaching

When referring to the question of teachability of second language pragmatic competence including politeness, researchers held miscellaneous views. Kasper (1997) presented a negative answer in her early papers claiming that language learners have possessed pragmatic knowledge in their first language. And the knowledge of L1 will be transferred naturally to the study of L2. Nevertheless, the influence of L1 transfer on the L2 may not be invariably positive because of the intervention of intercultural discrepancies and inapplicability. In this sense, pedagogic intervention is essential. Besides, as studies (Bardovi-Harlig & Mahan-Taylor, 2003; Bouton, 1988; Kasper, 1995; Rose & Kasper, 2001) show, it is difficult for learners to acquire pragmatic knowledge by themselves for most of the time. Therefore, the instructions from language teachers and opportunities for practicing and developing pragmatic competence are indispensable.

The teaching of politeness is omnipresent in English classrooms in China. Intercultural communicative competence is an integral part of cultivating goals of National Curriculum Standard for English. Paying attention to the similarities and differences between Chinese and foreign cultures (Ministry of Education, 2020) has been emphasized in every stage of language learning. And for students majoring in business English, gaining pragmatic knowledge of politeness is a compulsory course since email is the main tool for cross-cultural communication. Things need to be followed includes "pragmatic competence, awareness of the politeness conventions and email etiquette" (Economidou-Kogetsidis, 2015: p. 415).

Although college students are capable of producing appropriate linguistic forms and structures of a business email, the challenge of presenting the proper level of politeness exists (Economidou-Kogetsidis, 2015), which means explicit instructions and practical experiences are needed.

The teaching should include not only the introduction of politeness principles but also various kinds of awareness-raising activities. It is advised for teachers to select email texts that shows different politeness norms and then ask students to identify similarities and differences. Also, role play in the course for introducing cultural differences can be beneficial. Students in the class can act as people from different countries to hold business negotiation meeting. This can help students become aware of the demonstration form of politeness that prevail in different cultures. Also, it helps students to find out the inconsistency of pragmatic knowledge between the L1 and the target language. Other than consciousness-raising activities, exercises in specific context is required. Since business correspondence contains lots of themes such as claim letter, order letter and complaint letter, teachers can devise specific contexts and provide corpus of politeness in business for students to refer to and get familiar with different expressions in different genres so that they can put what they have acquired in the class into practice.

Conclusion

Politeness is an indispensable contributors for effective communication, especially in interactions take place in business area and also a compulsory lesson for language learners to take. Without bearing intercultural characteristics in mind to avoid offense, the speech full of flourish is of no use to tightly bridge people from various backgrounds together.

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Modified Nominal Group Technique (Ngt) and its Application to the Development of Elements in the Vocational College Standard Curriculum in the Field of Refrigerant and Air Conditioning (Vcsc_Rac) Based on Values to the Environment

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Abstract

This curriculum model is a value-based model of environmental sustainability built through the Vocational College Standard Curriculum of the Refrigeration and Air Conditioning (VCSC_RAC). Concerning that, this study proposes a Design Development Research (DDR) approach which is a multi-method development research approach. The study went through three phases and used several different research tools in each phase. The purpose of this study is to discuss the suitability of Modified NGT as a strategy to build a list of value elements for environmental sustainability through literature reading, discussion and votes to obtain the expert agreement in phase 2 of the design and development model. Only findings of phase 2 were discussed in this article. Researcher have distributed a list of developed elements for review by six experienced lecturers in the field of Refrigeration and Air Conditioning (RAC) to review and evaluate the elements and whether they can be accepted or rejected to be brought to the NGT process. A total of nine informants were involved in the NGT process, namely, experts from Vocational Colleges (VC), various educational institutions and industry sectors in the field of RAC as well as environmental experts from the Department of the Environmental (DOE), University of Putra Malaysia (UPM) and Teacher Education Institute (TEI) were involved in this NGT process. All these expertise have been selected and meet the set of criteria. The findings of the study indicated that 28 constructed value elements are accepted as components in the model development.

Keywords: Modified Nominal Group Technique (NGT), Model, Values, VCSC_RAC, Design and Development

1. Introduction

Environmental Education refers to planned efforts made to educate the community either formally or otherwise so that the well-being and survival of the environment and the environment are preserved and sustainable (Haliza, 2017). Therefore, a value-based model for environmental sustainability in the Vocational College Standard Curriculum in the field of Refrigeration and Air Conditioning (VCSC_RAC) is being planned and developed by researchers as a planned effort to educate students in the field of Refrigeration and Air Conditioning (RAC). This paper is the second phase of the study where this phase is the design phase of value-based model development for environmental sustainability in VCSC_RAC. Overall, there are three phases in this study, namely the needs analysis phase, the design and development phase and the evaluation phase where the Development Design and Research approach or better known as DDR is used. The first phase using the survey method was carried out in all Vocational Colleges in the field of Refrigeration and Air Conditioning (VC_RAC) all around Malaysia representing all 38 VC_RAC found in Malaysia including Sabah and Sarawak. Findings have been analyzed using the Statistical Package for the Social Sciences (SPSS) Version 23.0 which involves two constructs namely the model content requirement construct (15 questions) and the model construction construct (10 questions) regarding the value of environmental sustainability. The results of the study show that the overall mean of the model content construct (mean value 4.5675, standard deviation .39074) and the model construction requirement construct (mean value 4.5413, standard deviation .42459) are very high.

The interview findings of three respondents are also very positive and support the construction of a value model for environmental sustainability. This can give a clear enough picture of the need for the construction of this model and it justifies that a model is developed to increase the value of environmental sustainability and then become an added value for RAC students to enter the world of work in the industrial sector later. The second phase involves the use of the Nominal Group Technique (NGT) and Interpretive Structural Modeling (ISM) approaches which require a group of field experts to decide through expert consensus. However, one of the procedures in ISM requires a group of experts to discuss ideas and issues to be presented. For that purpose, a modified Nominal Group Technique (NGT) was used to examine the issues that were raised next to verify the selected elements before the ISM process was carried out. However, before being brought to the NGT process, the researcher first builds a list of elements through a literature review and submits the list of elements to each experienced VC_RAC in Malaysia lecturer representative from each Zone which is the South, Central, North, East, Sabah and Sarawak Zones to review and verify the list of elements first before being brought to the NGT process. The usability evaluation phase of the model is the last in this study and will use the Fuzzy Delphi Method (FDM) technique in evaluating the perception and satisfaction of the implementers towards the model that has been developed. The following is a flowchart related to the method used in this study.

Table 1. Design & Development Research (DDR) Approach Flow Chart for
Md Nizam Alam Sekitar (MNAS) Model Development

No	Research Objective	Research Question	Approach	Analysis
1	Explore the value elements of environmental sustainability that will be applied in the model.	What are the elements of value for environmental sustainability that will be applied in the model?	Questionnaire	Survey Analysis
2	Explore the value elements of environmental sustainability that will be applied in the model.	What are the elements of environmental sustainability value that will be applied in the model?	Interview	Interview Transcript
3	Develop MNAS model in VCSC_RAC ?	Is the MNAS model in VCSC_RAC compatible?	Questionnaire	*Nominal Group Technique (NGT) & Interpretive Structural Modelling (ISM)*
4	Evaluate the usability of the MNAS model in VCSC_RAC.	Is the MNAS model in VCSC_RAC appropriate?	Questionnaire	*Fuzzy Delphi Method*

2. Design and Development

To achieve a goal in the world of research, NGT is a decision-making process in the form of face-to-face small group discussions (Aizzat Mohd. Nasurdin, Intan Osman & Zainal Ariffin Ahmad, 2006) which is semi-quantitative and structured (O'Neil & Jackson, 1983); Dobbie, Rhodes, Tysinger, & Freeman, 2004; Perry & Linsley, 2006). NGT is semi-quantitative because it also incorporates qualitative methods in the design and development phases. This is because NGT starts with a qualitative method which is the process of 'acceptance of ideas without evaluation' which is then followed by a quantitative method which is the process of ranking or prioritizing ideas (O'Neil & Jackson, 1983). Many researchers have modified and adapted the NGT process to the studies to be conducted. However, the basic principle that is the backbone of the NGT process remains maintained where there are two main stages (1) identification of the issue of a problem through discussion; (2) voting process to get quick results. In addition, it is described that NGT requires the direct involvement of participants that is face-to-face or in workshops where participants are given equal opportunities to speak on all questions raised to have equal validity (Harvey and Holmes, 2012). In other words, it is an opinion to reach an agreement in making a decision. Next, to get ideas for the questions raised, it will happen in silence, without having to have a discussion with other participants or ask for an explanation from the researcher. This is to allow participants to produce their thoughts and ideas without interference or pressure from others, reducing dependence on other members who may not like to help and may affect the entire process (McMurray,

1994). Nevertheless, the researcher has chosen the method of sending a questionnaire in the form of a 7-point Likert scale to the experts via google form and through the whatsapp/telegram application since it was post-Covid-19 and the enforcement of the Movement Control Order (MCO) was still being implemented.

2.1 Nominal Group Technique (NGT) Modified

According to (Van de Den & Delbecq, 1971), NGT is a structured discussion of a small group to reach a consensus or agreement on an issue presented. The NGT technique is a popular technique and one of the effective techniques using structured group discussions (Duggan et al. 2004; Dowling et al. 2000). Meanwhile, Dang (2015) stated that there are two main processes in the NGT technique, namely the group discussion and the voting phase. He added, it is to produce semi-quantitative data and the format is used to encourage a meaningful experience and interpersonal exposure among participants in reaching a consensus. In addition, the NGT technique is very suitable for studies that require agreement and evaluation because the NGT technique can produce a high consensus. In retrospect, NGT was originally used by Van de Den and Delbecq (1971) as a tool to help disadvantaged communities in a community living environment. Now, the use of NGT techniques not only saves time but can also help researchers get accurate and precise views because the respondents express their views through questionnaires that are not influenced by any party (Habibah et. Al., 2018). Despite that, according to the recent passage of time NGT modification is very popular and relevant to be carried out because it saves time and energy because researchers first develop elements through a literature review. So, there is no need for a long discussion process to develop an element. In the post-Covid-19 that started and hit the world around 2020 and the implementation of the MCO at that time, the NGT method is also identified as an interview technique where the participants are met in a goggle meet and they express their views freely in oral form.

3. Values for Environmental Sustainability

In the context of this study, researchers see the need to emphasize the value aspect of environmental sustainability in VCSC_RAC. This element of value should be at the core of human capital development even if it is seen as a trivial matter by some parties. However, from the researcher's point of view, this element can have a significant impact and can subsequently produce the formation of competitive human capital in fostering the nature of being responsible for the sustainability of the environment. The same reinforcement was also stated by Mustapha Kamal, Zahiah and Abdullah (2010) that the need for a human being to have the main elements of high quality where the three main elements are mind, spirit and body must be nourished and refreshed. This explains that the balance of all aspects should be emphasized to produce good human capital formation. In the context of this study, the emphasis on the value element of environmental sustainability is focused on RAC students at VC in Malaysia. In the context of environmental sustainability, there are previous studies that emphasize the need to educate students on environmental sustainability and that it needs to be applied and mastered by students. According to Lakshman (2014), there is an increase in the need for ethical education and taught values in the field of skills training and TVET in Fiji.

This excerpt shows that there is a reasonableness and need to develop a value-based curriculum model for environmental sustainability in VCSC_RAC as a result of the lack of specific focus on the value aspect of environmental sustainability in VCSC_RAC. A holistic approach to human capital development integrated with skill training education in Malaysia is

very necessary (Zulkifli and Mohd Nor, 2016). This is in line with the National Education Philosophy (NEP) which is used as the basis for the formation of a balanced, harmonious and comprehensive education. Ismail (2015) stated that the same is also in line with the view of Lukman Hakim (2014) where his study on Polytechnic students states that the formation of the student's personality can be formed through the Islamic education curriculum. This is further reinforced by (UNESCO, 2014), almost 3 out of 10 employers (28 per cent) stated that the factor contributing to the current skills mismatch is transversal skills, which is one of the components of these skills ethics and values. However, in general, the formation of human capital at the higher education level in Malaysia is through general education courses (Wan Mohd Tarmizi & Munirah, 2014; Zulkefli, 2002). As the public knows that the proposed general subject is towards the development of the student's personality and the appropriate subject is related to the application of values towards environmental sustainability.

Therefore, the excerpts that have been discussed make researchers want to build a curriculum model so that they can help VC_RAC and its teachers in planning the best strategy for applying values to environmental sustainability and students can also apply a sensitive attitude and have a high-value of sensitivity to environmental sustainability around in their daily lives. At the same time, the existence of this model can increase the effectiveness of teaching and learning to produce students who are skilled and skilled and then have good ethics, values and morals towards environmental sustainability.

3.1 Development of Element Prefixes and Values

At the initial stage, the process involved in this section is a reading and literature review to build an initial list of elements confirmed by experts for element verification before being brought to the NGT process. A total of 6 experts have been selected from each VC zone and some of them consist of curriculum drafters, department heads, program heads, and excellent teachers in the field of RAC to obtain accurate views and recommendations regarding the initial list of elements. The list of accepted and verified elements will be taken to the NGT process. Next, the nine NGT experts consist of RAC experts, environmental experts, industry experts and curriculum experts. At this stage as well, a list of elements that have been obtained because of reading the literature has been presented. At this stage, a list of elements has been selected and used as a guide in the formation of the model.

3.2 Respondents

According to (Lomax & McLeman, 1984; Dobbie et al., 2004) some scholars state that NGT can be carried out in a large cohort or group, but it can be broken into small groups so that effective communication can be carried out depending on the needs of the study. There is some debate about the most appropriate sample size for conducting studies using the NGT technique which has received attention from researchers. For that purpose, the following is the appropriate sample size and has been used by the researcher which has been detailed in table 2.

3.3 Element Appraisal Expert before being taken to the NGT process

Table 2 . Element Appraisal Expert Profile before being brought to the NGT

No.	Position	Field of Expertise	Experience
1.	VC Lecturer	RAC (Central Zone)	29 years
2.	VC Lecturer	RAC (North Zone)	28 years
3.	VC Lecturer Ex Curriculum Developer	RAC (South Zone)	28 years
4.	Lecturer VC Head of Mechanical and Production Department	RAC (East Zone)	27 years
5.	Lecturer VC Ex-Head of Workshops & Head of Programme	RAC (Sarawak Zone)	30 years
6.	Lecturer VC Ex-Head of Programme & Curriculum Developer	RAC (Sabah Zone)	27 years

3.4 NGT Expert

Table 3. NGT Expert Profile

NO	POSITION	FIELD OF EXPERTISE	EXPERIENCE
1.	Associate Professor	Environmental Education (University of Putra Malaysia)	20 years
2.	Senior lecturer	Environmental Education (Teacher Education Institute)	15 years
3.	Environmental Control Officer	Environmental Education (Department of Environment)	15 years
4.	Lecturer	Curriculum Panel VCSC_RAC (VC)	10 years
5.	Lecturer	Expert Teacher & Ex-Head of RAC (VC)	12 years
6.	Lecturer	Industry Fellow of RAC (Tun Hussein Onn University of Malaysia)	15 years
7.	Lecturer	Writer of Refrigeration & Air Conditioning Servicing Sectors (RACS) Module Environmental Department (Industrial Training Institute)	12 years
8.	Lecturer	Speaker for the Air Conditioning and Air Conditioning Sector Engineer Course Program (RACS) - Polytechnic	13 years
9.	Industry Executive	Industry RAC (Research Department)	14 years

Meanwhile, for participants who are field experts, the following are expert criteria that may also be used as suggested by Siti Farah and Saedah (2015) to determine the criteria for participants who involve in discussion in groups, namely:

(i) individuals who have extensive knowledge and background or experience in fields related to the study.
(ii) willingness and time suitability to take part in the study.
(iii) Having good communication skills.
(iv) Having experience of more than 5 years.

According to Thor (1987), states that individuals who tend to criticize and judge other people's ideas in meetings are not advised to join this discussion session. This is reinforced by several criteria must be met in selecting participants where the participants involved must be knowledgeable people in the field being studied and participants have various backgrounds and allow participants to share views on issues from different angles and provide views different ideas.

4. NGT Workshop Supplies

Considering that post-Covid 19 which hit the country and the world around 2020 and 2021 and MCO, enforcement is still being enforced by the government, the investigators believe that the Google Meet meeting method, the telegram application and whatsapp were used throughout the conversation and this method was appropriate at that time. The following states the reasons and justification for the method of the study carried out.

4.1 Places (Google Meet)

The choice of venue for the NGT session to be held is important so that quality ideas can be generated. Make sure the place chosen is comfortable and conducive. Tables are arranged accordingly to facilitate conversation. Participants are also provided with workshop equipment such as pencils, pens, paper, related notes, and other accessories deemed necessary. However, investigators cannot carry out the method face-to-face because after Covid-19 and the enforcement of MCO powers is still in force. Then the appropriate method is carried out in the form of a google form inquiry and the expert will choose an agreement based on the Likert scale given for each element.

4.2 NGT Introduction Session

The investigator as the moderator needs to determine the main things in the introductory session that should be explained in the google meet session, namely:

(1) giving greetings to all participants;
(2) stating the purpose or interests of the workshop;
(3) introduce each participant involved in addition to their expertise;
(4) the moderator explains the guidelines regarding the NGT process so that all participants understand;
(5) explain how the results of the discussion decision will be used.

4.3 Custom NGT Process

Considering that post-Covid-19 and the strengthening of MCO powers are still in force, a group of selected experts have been brought together in the telegram application group and

investigators are constantly talking with a group of NGT experts through the telegram group. Then the questions in the form of a google form were circulated via telegram and the experts answered the questions. Then the investigator as the moderator talked with a group of experts through a google meet according to the date, day and time specified and the investigator obtained approval from the group of experts to facilitate the next process. The workshop is controlled by investigators who act as moderators to facilitate the communication process between a group of experts. The custom NGT process that has been carried out begins with the investigator initially listing a list of activity elements that are suitable for implementing values for the preservation of the surrounding environment in VCSC_RAC. This list of elements has also been given before being discussed so that experts can read the list of elements and continue to answer the probing questions provided via the google form. The existing list of elements will be discussed by the experts involved. This initial list of elements is necessary as a guide for starting a workshop session via the google meet method. This allows the discussion period to be shortened because experts already know about the list of elements through the Google form and pdf files that have been extended in the Telegram group. However, experts may respond whether they agree or disagree with the initial list of activity elements that are presented. Only elements that reach an agreement through mutual agreement are included in the model which will be developed through the Interpretive Structural Modeling (ISM) process later. Experts are also justified in expressing additional ideas that are deemed necessary for the model.

4.4 Advantages and Disadvantages of NGT

According to (Dang, 2015 and Odu, 2017;), a technique was introduced, and there are advantages and disadvantages in its application. The following are the advantages and disadvantages of the NGT method:

Table 4. Advantages and Disadvantages of NGT

	Advantages	Disadvantages
1.	The NGT method is more structured than the traditional approach. All participants are given equal opportunities in the conversation.	Topics that may be discussed through the NGT are limited to one issue at a time.
2.	NGT can be used in small groups or with many participants. As a rule, the quality of the ideas selected at the end of the session is very high. Many studies prove that the quality of NGT ideas is better than other decision-making techniques	NGT takes a long time to reach an agreement but in this study, the investigator has shortened the time because the elements have been awakened first and only accept or reject the elements presented.
3.	This clearly shows that the NGT remains transparent by not naming the participants involved. NGT assists any group that is unable to reach a unanimous decision on an issue. In addition, the NGT needs a place equipped with proper seating arrangements and other materials. However, considering that after Covid-19 and the strengthening of MCO regulations, the Google Meet method was very relevant at that time.	NGT requires a moderator who is experienced in overseeing the conversation session.

5. Initial List of Elements before being brought to NGT

Table 5. Preliminary List of Elements before being brought to NGT

No	List of MNAS Activities
1.	The teacher tells about how to identify environmental problems.
2.	The teacher questions and answered with students about awareness of environmental pollution.
3.	The teacher asks students to tell about the impact of refrigerant gas.
4.	The teacher asks students to explain the effects of global warming and the depletion of the ozone layer.
5.	The teacher questions and answers with students about aspects of protecting the environment.
6.	The teacher shows pictures to students related to environmental damage.
7.	Teachers share information with students about Acts and regulations about the environment via the internet.
8.	The teacher shows the students a documentary-related video about the natural surroundings.
9.	The teacher embodies the spirit of identity to students about being friendly with the environment.
10.	Teachers raise awareness among students about controlling the cylinder gain that is not correct and will cause an explosion.
11.	Teachers share information with students about the work of acquiring, recycling and redeeming refrigerants aimed at preventing the release of refrigerants into the atmosphere which can lead to global warming and depletion of the ozone layer.
12.	The teacher reminds students of the need for dry powder-type fire extinguishers to be available and to always use suitable Personal Protective Equipment (PPE)as a precaution when operating the system.
13.	Students build a scrapbook about the effects of refrigerant gas.
14.	Students write essays about respecting and caring for the natural environment.
15.	Students deliver lectures on the depletion of the ozone layer.
16.	Students produce posters regarding smoking, using guidance phones and working more than 2 meters from any ignition source.
17.	The teacher asks students to explain the types of cooling materials.
18.	The teacher shows awareness about ozone-depleting substances (ODS) and the potential for ozone destruction (ODP).
19.	The teacher asks the students to tell about the effect of purple radiation (UV) that stems from the depletion of the ozone layer.
20.	The teacher tells the students about the role of the Environment Department and the impact of the Green House.
21.	The teacher asks students to produce a scrapbook on the World Warming Potential (GWP), the Montreal Protocol and the Act on Quality of the Surrounding Nature, 1974 (Deed 127).
22.	The teacher questions and answers the students about the Import Control of Ozone Destroying Substances (ODS) under the 1967 Customs Deed.
23.	The teacher raises awareness for students not to release refrigerant into the air while working on the RAC system.
24.	The teacher applies to students during acquisition work, the limit that is acceptable for acidity is 0.2 Total Acid Number (TAN) and 100 ppm humidity to reuse coolant.

25. The teacher forms students to practice the work procedure regarding the production cylinder must be free from moisture and carrying out periodic leak tests.

26. The teacher reminds students not to release excess charge out into the air and it is necessary to use a recovery machine and re-charge after vacuum.

27. The teacher encourages students to work on controlling refrigerants in areas that have good ventilation.

28. The teacher tells the students about redemption work to reduce the release of refrigerants into the atmosphere.

29. Students carry out work on the removal of refrigerant (procurement) according to ISO 11650 & AHRI 740 standards.

30. The student takes care to make sure all the connecting rod hose connections are correct and tight while the acquisition work is done.

31. The student expressed concern about the valves on the cylinders and the unit having to be closed manually to avoid overfilling the cylinder gains.

32. Students are concerned about the work of separating oil, removing non-condensable gases and using devices such as drying filters to absorb moisture and acidity by using a recycling machine.

33. Students expressed concern about the refrigerant needing to be restored to original specifications and complying with the AHRI 700 Standard while performing redemption work.

34. Students are concerned that different types of refrigerants should not be mixed in a system while performing redemption work.

35. The student expresses concern about recovery cylinder inspection work and retesting to avoid damage.

36. Students raise awareness about avoiding contact with liquid refrigerants that can cause Frost Bite.

6. Final List of NGT Elements (Drawing Process)

Table 6. List of elements based on values for the environment

	Activity Element	P1	P2	P3	P4	P5	P6	P7	P8	P9	Total	Pct. (%)	Status
1	The teacher interacts with students about environmental pollution awareness.	6	7	7	7	6	7	6	7	7	60	95.2	Accept
2	The teacher gives a scrapbook assignment regarding the impact of releasing refrigerant into the atmosphere.	6	7	6	4	6	7	6	6	7	55	87.3	Accept
3	The teacher asks students to share knowledge about the effects of global warming and the depletion of the ozone layer.	7	7	6	6	6	7	5	6	7	57	90.5	Accept
4	The teacher interacts with students about aspects of protecting the environment.	6	7	6	7	6	7	6	6	7	58	92.1	Accept
5	The teacher shares information with students about the 1974 Environmental Quality Act and the regulations under it through the website page.	7	7	7	7	6	7	5	6	7	59	93.7	Accept

6	Teachers raise awareness to students about controlling a gain cylinder that does not follow specifications will cause an explosion.	7	7	7	7	6	7	7	7	7	62	98.4	Accept
7	Teachers share information with students about the work of acquisition, recycling and redemption to aim at preventing the release of refrigerants into the atmosphere that causes global warming and depletion of the ozone layer.	7	7	7	7	6	7	6	7	7	61	96.8	Accept
9	The teacher asks students to explain the types of cooling materials used in the work of operating air conditioning and cooling systems.	7	7	7	7	6	7	6	6	7	60	95.2	Accept
10	The teacher shows awareness about ozone-depleting substances (ODS) and the potential for ozone destruction (ODP).	7	7	7	7	6	7	6	7	7	61	96.8	Accept
11	The teacher asks the students to tell about the effect of purple radiation (UV) that stems from the depletion of the ozone layer.	7	7	7	7	6	7	5	6	7	59	93.7	Accept
12	The teacher tells the students about the role of the Department of Environment and the Impression of a Green House.	7	7	7	7	6	7	6	7	7	61	96.8	Accept
13	The teacher asks students to produce scrapbooks on the World Warming Potential (GWP), the Montreal Protocol and the Quality of the Surroundings Act, 1974 (Deed 127).	6	7	7	6	6	7	5	6	7	57	90.5	Accept
14	The teacher questions and answers the students about the Import Control of Ozone Destroying Substances (ODS) under the 1967 Customs Deed.	6	7	7	6	6	7	5	5	7	56	88.9	Accept
15	The teacher applies during the acquisition process, the limit that can be accepted for acidity is 0.2 Total Acid Number (TAN) and 100 ppm humidity to reuse coolant for students.	7	7	7	7	6	7	6	5	7	59	93.7	Accept
16	The teacher reminds students to practice the procedure regarding the production cylinder must be free from moisture and carry out leak tests periodically.	7	7	7	7	6	7	6	6	7	60	95.2	Accept
17	The teacher reminds students not to release excess charge out into the air and need to use the recovery machine and then need to recharge after vacuum.	7	5	7	4	6	7	6	7	7	56	88.9	Accept
18	The teacher applies the work practice of controlling refrigerants in areas that have good ventilation to students.	7	7	7	7	6	7	7	6	7	7	96.8	Accept
19	Students carry out work on the removal of refrigerant (procurement) according to ISO 11650 and AHRI 740 standards.	7	7	7	7	6	7	5	6	7	7	93.7	Accept

20	Discipline students to make sure all interconnection connecting rods are correct and tight during acquisition work is done.	7	7	7	7	6	7	6	6	7	7	95.2	Accept
21	The student expressed concern about the valves on the cylinders and the unit having to be closed manually to avoid overfilling the cylinder gains.	6	7	6	5	6	7	5	6	7	6	87.3	Accept
22	Students are concerned about safety while carrying out the work of separating oil, removing non-condensable gas and using drying filters to absorb moisture and acidity by using a recycling machine.	6	7	7	7	6	7	6	6	7	6	93.7	Accept
23	Students are aware of the need for refrigerants to be restored to original specifications and comply with the AHRI 700 Standard while performing redemption work.	6	7	7	7	6	7	5	7	7	6	93.7	Accept
24	Students are aware that coolants of different types should not be mixed in a system while performing redemption work.	7	7	7	7	6	7	7	7	7	7	98.4	Accept
25	Students are aware of recovery cylinder inspection work and retest to avoid damage.	6	7	7	7	6	7	5	6	4	6	87.3	Accept
26	Learn about avoiding contact with liquid refrigerants that can cause Frost Bite.	7	7	7	7	6	7	6	6	5	7	92.1	Accept
27	Students produce essays entitled caring for and respecting the natural surroundings.	5	5	6	7	6	7	5	6	7	5	85.7	Accept
28	Students produce posters regarding the prohibition of smoking and using guidance phones and need to work more than 2 meters from any ignition points.	5	7	7	7	6	7	7	5	5	5	88.9	Accept

7. Application of NGT on Value Element Development

At this stage, the results in table 5 are used to be presented to a group of 9 experts in the NGT session to get views, explain ideas and paragraph structures and make decisions about whether to perpetuate or reject ideas that are irrelevant to the context of the study. At the end of the NGT session meeting, a consensus was reached by a group of experts in which the experts agreed to accept the 28 elements that had been reserved at the initial stage without rejecting the existing elements. These selected elements have been validated and the verse structure improved by a group of experts. The experts have also been given a set of questions for the validity and trustworthiness of the data in the creation of a value-based model for environmental sustainability in VCSC_RAC before the ISM process is carried out. This draw also aims to accept and reject elements that have been reserved as a result of the discussions that have been debated in this collection. Table 5 shows the results of the results obtained for developing value elements for environmental sustainability in the VCSC_RAC along with the scores, percentages and also the priority of the results from the lottery to obtain expert consensus regarding the elements that have been presented. The scale used for this raffle is a

scale of 1 to 7, namely, scale 1 = Strongly Disagree; 2 = Strongly Disagree, 3 = Disagree; 4 = Disagree; 5 = agree; 6 = Strongly Agree; 7 = Completely Agree.

8. Conclusion

This study has explained the history, development, supply, and process of a customized NGT approach, while also discussing the advantages and disadvantages of this technique in developing value elements for the preservation of the surrounding nature in VCSC_RAC. This list of value elements aims to serve as the contents of the model content that will be developed later. In reducing problems related to global warming and depletion of the ozone layer due to the impact of refrigerants, this model can be used as an alternative to an effort towards environmental preservation. Overall, it can be concluded that there are 28 elements of value to the preservation of the surrounding nature that have been successfully developed using a customized NGT technique. The customized NGT technique turns out to be effective as a decision-making tool to obtain collective or mutual agreement in solving an issue or problem. The application of a customized NGT technique has assisted investigators in identifying the best elements to serve as guidelines for teachers to apply values to environmental sustainability into students' minds. A customized NGT not only helps investigators in saving time, but it has also even helped investigators in getting precise and precise views because the experts involved are experts who are very wise and experienced in the field of study. The application of customized NGT techniques also adds a variety of methods in investigations in Malaysia, especially in the field of education. This is also appropriate and relevant to the Industrial Revolution (RI 4.0) which emphasizes a flexible and organic curriculum system.

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Classroom Assessment Standards: Indonesian EFL Teachers' Assessment Practices in the Amid of the Pandemic

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Abstract

This study investigated assessment standards conducted by EFL Indonesian secondary school teachers and how they coped with the emergency remote teaching during the pandemic. The Indonesian curriculum assessment standard and Brookhart's educational assessment standards were used as a research framework. An explanatory sequential research design was employed to capture the research problems holistically. First, using an online questionnaire based on Brookhart's educational assessment standards, 119 EFL teachers at junior and senior high schools who taught students in online settings during the pandemic were participated. Then, the obtained data were explored by conducting a semi-constructed interview to four selected teachers from different schools. In analyzing quantitative data, descriptive statistics was used to gain the frequency data of teachers' assessment. Sequentially, the interviews were transcribed, categorized, and interpreted following the Indonesian curriculum assessment standards as qualitative data. The findings show that EFL teachers performed most assessment practices in Brookhart's standards during the pandemic. However, through interviews, teachers admitted that they did not maximize classroom assessment mentioned in the curriculum assessment standards because the classroom situation was different and unpredictable in online learning during the pandemic. This study is theoretically and practically significant for implementing and evaluating classroom assessment practices amid the pandemic.

Keywords: Assessment Standards, Classroom Assessment, EFL Secondary Teachers, Online Learning Assessment, Assessment During the Pandemic

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1.   Introduction

Almost two years since the Covid-19 pandemic was firstly spread. In education, countries worldwide try to adapt the pandemic situation by introducing emergency remote teaching as one of the responses. Amidst the global pandemic, the Indonesian Ministry of Education and Culture, on official latter No. 719/P/2020, launched an emergency curriculum during the pandemic. The emergency curriculum during the pandemic requires English teachers to be adaptable in teaching (Hapsari, 2020) and specifically in assessing students. Regardless of how the instructional teaching is simplified, the assessment standards and the essence do not change, still following the Ministry of education and culture No. 23/2016. Teachers must stick to the aims, principles, mechanisms, procedures, and classroom assessment instruments (MOE, 2016). Moreover, the pandemic leads to an educational shift from traditional to online learning or emergency remote teaching (ERT). According to Hodges et al. (2020), ERT refers to a sudden shift in education from face-to-face to an online learning environment responding to an emergency. Further, they state that ERT and online learning are significantly different in which online learning requires voluntary planning and design of virtual delivery, while ERT is used in an unpredicted situation. Regardless of the situation that makes those concepts different, they have the same underpinning framework, technology-based education.

However, based on the data revealed by the Indonesian Teachers Association (IGI), the implementation of distance or online learning in the last three months of 2020 showed only 60% because of teachers' inferior skills in utilizing technology (see Dewi & Wajdi, 2021). It is supported by several studies' findings that EFL teachers had a lack of readiness and inability to teach online because they still struggled using digital platforms. As a result, they transformed traditional learning activities into online learning without maximizing the technology (Atmojo & Nugroho, 2020; Ilmiani et al., 2021; Kusumastuti, 2020; Mardiah, 2020; Nugroho & Haghegh, 2021; Situmorang et al., 2020; Sumardi & Nughrahani, 2021; Supriadi et al., 2020; Syarifah & Zainil, 2021; Yundayani et al., 2021). Online learning impacts assessment and evaluation in which it has unique aspects compared to face-to-face learning (Dumford & Miller, 2018). For example, Serwatka (2002, in Dumford & Miller, 2018) stated that specific techniques in a traditional classroom do not always work in online learning. Although ERT forces teachers to utilize technology, pedagogical challenges reduce the function of technology for teaching and learning during the pandemic. Therefore, investigating the assessment practices of EFL teachers during the pandemic is pivotal.

This recent research investigated the frequent classroom assessment practices conducted by EFL Indonesian secondary school teachers and how they cope assessment standards during the pandemic with technology-based education mandated on the emergency curriculum with. The proposed research questions: What are frequent classroom assessment practices conducted by Indonesian secondary EFL teachers during the pandemic? How do Indonesian secondary EFL teachers practice their assessment standards regarding emergency remote teaching during the pandemic? This study is expected to contribute to some significance. First, theoretically, this study is significant as a framework for policymakers and educators in curriculum assessment and educational regulations during the pandemic. Secondly, this study is helpful practically to evaluate the implementation of curriculum assessment standards and educational regulations during the pandemic.

2.   Literature Review

Assessing students is one of the integrated activities in the classroom that teachers must conduct. McMillan and Workman (1998) define classroom assessment as a process of collecting, interpreting, and using students' learning information to assist teachers in teaching decision-making. It is a fundamental aspect of learning instructions (Kearns, 2012). Then, Wang (2017) adds that classroom assessment assesses students' learning and achievement, covering eliciting-interpreting-using processes. Also, Cheng, Rogers, and Hu (2004) state that student achievements should be aligned with learning objectives for designing instructional, grading, and reporting practices. Karagül, Yüksel, and Altay (2017) mentioned that assessment and grading are essential aspects of effective teaching. Hence, it can be underlined that classroom assessment deals with teachers' instructional decisions for gaining students' learning information and achievement.

Classroom assessment in this current study cannot be separated from its standards. Assessment standards refer to a model of systematic guidelines for educational assessment. This current study used two standards as frameworks for collecting and analyzing data. The first assessment standard, taken from the 2013 Indonesian curriculum, is the national assessment standard (MOE, 2016). It is mentioned in the Ministry of Education and Culture policy (MOE, 2016) that the educational assessment standard refers to the criterion of scope, purpose, function, mechanism, procedure, and instrument for assessing student learning process and their achievement in three aspects: affective, cognitive, and psychomotor. It aligns with McMillan and Workman (1998) and Wang (2017) that assessment collects information about students' learning to evaluate their processes and achievements. Further, this assessment standard measures students' competency accomplishment in the daily and yearly reports and middle and final term. Teachers can give exams, observations, tasks, or other assessment forms following several procedures: a) setting aims of assessment referring to lesson plan, b) arranging question grid, c) creating instrument and its guidance, d) analyzing instrument quality, e) doing an assessment, f) collecting, analyzing, interpreting assessment results, g) reporting, and h) using assessment results. To capture student behavior, they observe during learning, then write it down in an observation sheet to be followed up and described. They have options to select a type of test, whether written, spoken, or tasks derived from selected competency for measuring student knowledge. At the same time, they give students practice, product, project, and portfolio for measuring students' skills. Teachers report the results in a range score from 0 to 100 with descriptions.

Another assessment standard for exploration and comparison, the researcher used Brookhart's educational assessment standard. Brookhart (2011:7) declares a model for educational assessment standards containing eleven points regarding classroom assessment practices. First, teachers should understand learning in the content area they teach. Second, they are expected to articulate clear learning objectives attainable and assessable by standards and curriculum. Third, they need to have a repertoire of strategies for communicating what achievement of a learning intention can be. Fourth is understanding the purposes and uses of the range of available assessment options and using them. Fifth, they can ascertain the specific knowledge and thinking skills required for students to do them. Sixth, they can provide practical, helpful feedback on student work. Seventh, they can construct scoring schemes that quantify student performance on classroom assessments into helpful information for decisions about students, classrooms, schools, and districts. These decisions should lead to improved student learning, growth, or development. Eighth, they are familiar with administering external assessments and interpreting their results to judge students,

classrooms, schools, and districts. Ninth, they are used to articulate their interpretations of assessment results and reasons about the educational decisions based on assessment results to the educational populations they serve (student and his/her family, class, school, community). The tenth is helping students use assessment information to make sound educational decisions. The last is understanding and carrying out their legal and ethical responsibilities in assessment as they conduct their work.

The researcher used those assessment standards as a theoretical framework for creating instruments in both quantitative and qualitative phases. The Indonesian educational assessment standards point to practices that English teachers applied before the pandemic with some principal adjustments in emergency remote teaching. This standard is suitable for acquiring assessment practices of English teachers during the pandemic. At the same time, having Brookhart's standard is an attempt to triangulate frameworks from the government policy to the perspectives of an expert as works of Brookhart are about educational assessment (Brookhart, 1993, 1997, 2011; Brookhart et al., 2016a).

3.   Methods

3.1. Research Design

The researcher conducted this study using a mixed-method explanatory sequential design (Creswell & Guetterman, 2019) for several reasons. First, using quantitative and qualitative methods, the research questions can be understood and explored comprehensively. Furthermore, the researcher believes that this method is suitable for achieving a single study's research objectives (Creswell, 2012). This type of method is characterized by the quantitative data explored by qualitative data.

The researcher employed quantitative data collection using a questionnaire that was arranged and analyzed following Brookhart's educational standard (2011) to gain frequent classroom assessment practices by secondary EFL teachers during the pandemic. Then, the obtained data were followed up using a semi-constructed interview as a qualitative data collection. The interview questions were based on the Indonesian educational assessment standard (MOE, 2016) with some modifications mentioned in the ERT curriculum (MOE, 2020). The assessment standards used in this study: Brookhart's educational standard (2011) and the Indonesian educational assessment standard (MOE, 2016) have quite similar stages in assessment procedures as explained in the literature review. The data interview was employed to explore how they cope assessment practices in online learning with emergency remote teaching. Eventually, the interpretation of data was sequentially from all of those data.

3.2. Participants

This questionnaire was spread online targeting secondary teachers from junior and senior high in public and private schools under the Ministry of Education and Culture, and schools under the Ministry of Religion Affairs (Islamic junior and senior high in public and private schools). The researcher selected secondary schools to collect data because these levels of education significantly impacted the pedagogical shift compared with higher education. The specific criterion of EFL secondary school teachers is those who conducted online or distance learning during the pandemic. Due to the limited time of data collection, within a week, there were 119 respondents (see Table 1).

Table 1. Teaching experiences

		Frequency	Per cent	Valid Percent	Cumulative Percent
Valid	< 1 year	7	5.9	5.9	5.9
	> 10 years	51	42.9	42.9	48.7
	1 - 2 years	23	19.3	19.3	68.1
	3 - 4 years	13	10.9	10.9	79.0
	5 -10 years	25	21.0	21.0	100.0
	Total	119	100.0	100.0	

Table 1 above shows that English teachers with more than ten years of teaching experience are the most dominant respondents (N = 51) On the other hand, novice teachers who have experienced less than a year are only 5.9%.

Table 2. Education levels

		Frequency	Per cent	Valid Percent	Cumulative Percent
Valid	Junior High School (SMP/MTs)	63	52.9	52.9	52.9
	Senior High School (SMA/SMK/MA)	56	47.1	47.1	100.0
	Total	119	100.0	100.0	

3.3. Data Collections

As mentioned above, the researcher conducted two phases in collecting the data. For the quantitative phase, the researcher distributed a questionnaire using Google Forms adopted four Likert scale responses: 4 = often, 3 = sometimes, 2 = rarely, and 1 = never. The questionnaire was arranged following eleven principles of Brookhart's educational standard (2011) to create 28 items as presented in Table 3.

Table 3. Questionnaire Items

Items	Item Numbers
I understand the steps how I am going to teach	Q1
I understand about what materials I am going to teach	Q2
The way I teach in the class is as same as what I have planned	Q3
I formulate learning objectives based on curriculum goals	Q4
I formulate learning objectives which are attainable and assessable.	Q5
I design classroom activities based on the learning objectives	Q6
I articulate learning objectives to student's beforehand classroom begins.	Q7
I understand the purposes of various assessment options that I will use to assess student' classroom performances.	Q8
I understand how I am going to use various assessment options to assess students' performances.	Q9
I am able to evaluate test items that I made.	Q10
I construct scoring schemes to assess students	Q11
I consider students' work into valuable scoring	Q12
I consider students' effort in learning into valuable scoring	Q13
I consider students' attendance into valuable scoring.	Q14
I consider students' test results into valuable scoring	Q15
I provide students time to do a follow-up of their feedback	Q16
I provide practical and valuable feedback on students' work	Q17
I use scoring results to evaluate learning activities.	Q18
I use scoring results to evaluate students' achievement.	Q19
I use scoring results to evaluate school assessment policies.	Q20
I use scoring results to evaluate regional assessment policies.	Q21
I report the scoring results and their reasons to students.	Q22
I report the scoring results and their reasons to students' parents.	Q23
I report the scoring results and their reasons to school committee.	Q24
I report the scoring results and their reasons to regional government.	Q25
I assist students to use the assessment result for further educational records.	Q26
I uphold rules in assessing students	Q27
I uphold ethics in assessing students	Q28

Since the questionnaire items were developed based on the theory without looking at previous related instruments, it was piloted to six EFL secondary schools who had the same characteristics with the targeted respondents. Then, it was evaluated using SPSS to measure the consistency of items. Table 4 below presents all items used in this study are reliable as

Shim (2009) stated that a Cronbach's alpha of 0.906 to 0,936 indicates high internal consistency of items.

Table 4. Reliability Statistics

Cronbach's Alpha	N of Items
.931	28

After that, systematically, the researcher employed a semi-structured interview. In the questionnaire initially shared, the interview consent was proposed to respondents. Among all of them, implementing random purposeful sampling (Collins et al., 2006), the researcher selected four participants from different school levels as each teaches at junior high school, Islamic junior high school, senior high school, and vocational school both a representative of private and public school and from the Ministry of Culture and Education and the Ministry Religious Affairs. The interviews were conducted in ten up to fifteen minutes consisting of eighteen questions. During the interview, the researcher recorded participant responses via Zoom meetings. The researcher used Indonesian to maximize responses (Filep, 2009).

3.4. Data Analysis

Using SPSS, the questionnaire data was calculated to measure the frequency *(Mean, Median, and Mode)* of teachers' classroom assessment practices as quantitative data. From eleven descriptions in Brookhart's standards, the researcher elaborated them into twenty-eight questions (see Table 3).

The researcher followed Lichtman's steps (2012) for analyzing the interview as qualitative data. First, the data from interviews were transcribed using google voice typing then the researcher verified its suitability. Then, from the data that were converted into texts, the researcher coded and categorized the data into several themes: a) assessment standards, b) lesson plan, c) learning objectives, d) assessment procedures, and e) feedback and follow-up. These themes are aligned with Indonesian educational assessment standards as procedures that teachers must follow (MOE, 2016) and also with practices mentioned in theoretical frameworks such as collecting, interpreting, and using the information (Mcmillan & Workman, 1998; Wang, 2017); designing instructional, grading, and reporting practices should be based on learning objectives (Cheng, Rogers, a& Hu, 2004); scoring, grading, and giving feedback (Bown & Abeywickrama, 2010); and eleven descriptions in Brookhart's standards. Data analysis and interpretation for both quantitative and qualitative, the researcher used the Indonesian educational assessment standards (MOE, 2016) and classroom assessment standards frameworks of Brookhart (2011). For triangulation data, previous studies that had been conducted were presented.

4.   Results

4.1. Descriptive Statistics

English teachers at secondary schools during the pandemic often conducted most of the assessment practices in the questionnaire items coined by Brookhart (2011): Q1, Q2, Q4, Q5, Q6, Q7, Q8, Q9, Q10, Q11, Q12, Q13, Q14, Q15, Q17, Q18, Q21, Q23, Q27, and Q28 (see Table 3). They understood the materials, methods, and assessments used in the classroom because they had already prepared all of those instructions in the lesson plan. In the designing process, teachers valued what is mentioned in the curriculum. It was started from formulating

and articulating learning objectives that are attainable and assessable to students, evaluating test items, and constructing scoring schemes. Teachers accumulated students' tests and considered students' works, efforts, and attendances. Then, they used the results to grade students for evaluating learning activities and students' achievement. Also, they reported scoring results and their interpretations to students and the school committee. The data also shows that they obeyed rules and ethics in the curriculum for assessing students.

Besides the frequent practices, most teachers sometimes conduct assessment practices as mentioned in the questionnaire items: Q3, Q16, Q19, Q20, Q22, Q25, and Q26 (see Table 3). They did not precisely follow the lesson plan they have made. They also did not maximize feedback and follow-up on assessment practices. They were not familiar with using assessment results to evaluate school and regional assessment policies. Also, they did not prioritize reporting the results to students' parents and using students' assessment results for further education.

There is only one item that teachers had never done in classroom assessment that showed in item Q24 (see Table 3). Teachers did not report the assessment result and its reasons to the regional government even though Brookhart emphasized it in the framework.

4.2. Descriptive Qualitative

The researcher interviewed four selected teachers to follow up on the quantitative data. Several questions adhering to Indonesian educational assessment standards were proposed to deepen and explore items in the questionnaire. Since Brookhart's framework provides general classroom assessment practices, the Indonesian curriculum assessment standard was taken into account for the specification. As a result, based on those two frameworks, there are several highlighted themes to analyze the data: a) assessment standards, b) lesson plan, c) learning objectives, d) assessment procedures, and e) feedback and follow-up. The researcher arranged the explanations based on those themes in the data display below. Meanwhile, the participant codes describe as follow: participant 1 refers to an English teacher in a vocational school, and participant 2 is a junior high English teacher. Participant 3 comes from an Islamic senior high school, and participant 4 is an English teacher of an Islamic junior high school.

4.2.1. Assessment Standard

The participants designed lesson plans, syllabus, and academic calendar and formulated learning objectives following core and basic competencies. It includes assessing cognitive, psychomotor, and affective aspects based on the Indonesian educational assessment standards. It was stated by all of the participants in the interview. However, they admitted that adjustments in the curriculum assessment standard always happened due to school policy and consensus of MGMP (An organization of particular subject across the region). Moreover, one of the participants claimed that implementing what has been prepared on the lesson plan during the pandemic was challenging.

4.2.2. Lesson Plan

Specific to designing lesson plans, core and basic competencies are the navigators to arrange instructional teaching, including in assessing students. Most participants prepared the lesson plans and the other important documents such as yearly and semester programs and the academic calendar beforehand the teaching process. Although the participants completed

those administrations, in practice, sometimes they missed and changed them due to classroom situations during the pandemic.

4.2.3. Learning Objectives

Then, in more detailed descriptions, participants informed how they made learning objectives assessable in all domains: cognitive, psychomotor, and affective, by referring to basic competencies. Changes and adjustments also happened because of school policy, students' incapability, and classroom situation during the pandemic.

4.2.4. Assessment Procedures

Most participants employed similar assessment procedures from designing lesson plans to providing feedback after scoring since they followed the curriculum assessment standard as the primary resources. They used observations to assess students' affective. Besides, they conducted unit tests, middle and final exams, daily exercises to evaluate students' cognitive and skill performance. The difference occurs in a way that participants value the affective domain. Some of them emphasized the affective domain to evaluate students' achievement during the pandemic because they assumed that students' knowledge mastery was difficult to achieve.

Meanwhile, the rest of the participants emphasized students' middle and final exams because, based on the school regulation, students' affective score was integrated with all subjects, and it was challenging to record students' classroom activities during the pandemic. Teachers used rubrics, valuing scoring criteria in each skill 0-100. Eventually, teachers required students to get a minimum mastery criterion for the final grade. This grade is a collective score from cognitive, psychomotor, and affective domains.

4.2.5. Feedback and Follow-Up

In giving feedback and follow-up students' grades, approximately right away or in a week, the participants gave remedial to boost students' scores.

5. Discussion

Brookhart's educational assessment and assessment standards of the Indonesian 2013 revised curriculum were used as research frameworks in this study. As Rea-Dickins stated (2001, in Cheng & Wang, 2007) that a working framework is needed to analyze classroom assessment to comprehend how the teachers' practices conformed to the standards.

The questionnaire findings show that most EFL teachers at all secondary school levels performed classroom assessment standards following the educational assessment standards coined by Brookhart (2011), which is also aligned with the national assessment standards in the Indonesian 2013 revised curriculum during the pandemic. Teachers understood the instructional learning related to what materials, methods, and assessments they used. Teachers relied on learning objectives to design instructional, grading, and reporting practices, as suggested by Cheng, Rogers, and Hu (2004). Further, data from the questionnaire implies that the ways teachers formulated learning objectives were also aligned with the curriculum. Teachers were familiar with various instruments in assessing students, aspects they should consider, assessment criteria for plotting student scores, and reporting the

assessment results. The findings present the variety and complexity of classroom assessment practiced by teachers because classroom assessment involves various components, variables, and practices (Wang, 2017) and cross summative, formal to informal (Brown & Abeywickrama, 2010).

Following Brookhart's educational assessment, teachers did not frequently perform several practices even though the practices are needed in assessment practices. For example, teachers did not frequently report the assessment results to students' parents, give feedback and follow-up on student works, and assist students to use the result for further education. In terms of assessment evaluation, teachers did not report and involve in school and regional regulations because the curriculum assessment standards only obligate them to use the assessment results for evaluating: the achievement of students' competence, learning process, and student learning reports. Hence, reporting the assessment result should be an essential practice contributing to regulations from schools to regional policymakers since Brookhart (2011) describes reporting assessment results must be sequentially from teachers to regional policymakers. Referring to Brown and Abeywickrama (2010), this situation causes ineffective washback in which students did not find the assessments as learning experiences.

Based on major themes in qualitative data, the researcher concludes that English teachers did not maximize classroom assessment practices during the pandemic. According to four interviewed teachers, the classroom activities and situations were different and unpredicted during online or blended learning. They admitted that the implementation was different even though they followed curriculum assessment standards for designing lesson plans, learning objectives, assessment procedures, criteria, schema, instruments, and feedback and follow-up. Changes and adjustments cannot be neglected due to unpredicted classroom situations during the pandemic. This unpredicted situation leads to Emergency Remote Teaching explained by Hodges et al. (2020) in which English teachers did not have well preparation and voluntary planning in online learning during the pandemic. As a consequence, technology-based education that offers flexibility (Yin & Shi, 2021), efficiency, and convenience (Dumford & Miller, 2018) utilized in online learning during the pandemic could not be well-achieved.

The findings of this study support the data reported by the Indonesian Teachers Association (IGI) that the implementation of distance or online learning in the last three months of 2020 showed only 60% because of teachers' inferior skills in utilizing technology (see Dewi & Wajdi, 2021). It is also aligned with several studies' findings that EFL teachers had a lack of readiness and inability to teach online because they still struggled using digital platforms. As a result, they transformed traditional learning activities into online learning without maximizing the technology (Atmojo & Nugroho, 2020; Ilmiani et al., 2021; Kusumastuti, 2020; Mardiah, 2020; Nugroho & Haghegh, 2021; Situmorang et al., 2020; Sumardi & Nughrahani, 2021; Supriadi et al., 2020; Syarifah & Zainil, 2021; Yundayani et al., 2021). Further, assessment and evaluation in online learning have unique aspects (Serwatka, 2002, in Dumford & Miller, 2018) because specific techniques in a traditional classroom do not always work in online learning. Therefore, adjustments of assessment standards done by EFL teachers when assessing their students in this study are reasonable.

Scoring and grading practices done by English teachers are relevant with what was mentioned by Douglas (2011: 55-56) since they discussed how to score with other English teachers in MGMP (An organization of a particular subject across the region) to get consensus. Also, they upheld the curriculum assessment standard and adapted them with school regulations, as explained by Brown and Abeywickrama (2010). For instance, the

English teacher from the vocational school disclosed that she did not assess students' affective because that was responsible for the room teacher corresponding with all subject teachers. In addition, it seems that not all English teachers were aware of the emergency remote teaching with the simplification of instructional teaching. Explicitly, only the English teacher from vocational school made a lesson plan on a sheet of paper. It contradicts the findings of Hapsari (2020) shows that English teachers had a good perception of ERT.

Furthermore, there is a gap between teachers' knowledge and their practices. As admitted by the interviewed teachers, although they understood assessment standards and school regulations, they were still difficult to bear with the pandemic situation. Most participants argued that teaching in the pandemic through online or blended learning was more challenging than face-to-face learning because students lacked motivation, facilities, and understanding. Evaluating students' cognitive and psychomotor was challenging because online learning demotivates students' learning and decreases their knowledge mastery. Students' lack of understanding impacted their scores in any exercise, task, or test. Students also did not participate in the class actively. It became worst for junior high schools students who chose not to attend the class when it was online. It impacts their knowledge and skill mastery that were not well-accomplished. Therefore, English teachers in junior high schools emphasized students' affective. It is suitable with what is reported by Atmojo and Lase et al. (2021), Holisoh and Fitriani (2020), Nugroho (2020), and Nugroho et al. (2021) that English teachers in ERT struggled with different levels of mastery, low awareness on online learning, lack of students' motivation and engagement besides availability of internet connection and quotas. Hence, the interviewed teachers always compared online learning to face-to-face as students' engagement was less.

A dilemmatic perspective has risen in a way English teachers modified and adjusted classroom assessment standards during the pandemic as a priority of ERT and also suggested by the Ministry of Education and Culture that teachers must value simplicity, flexibility, and empathy since student security during the pandemic (Cahyadi et al., 2021). However, to make students pass, the teachers gave them minimum mastery criteria (KKM) by valuing their attendance and attitudes while learning. The Indonesian revised curriculum itself highlights students' attitudes as learning outcomes. As a result, teachers or school committees tolerated the assessment standards by modifying and adjusting the practice standards focusing on students' attitudes. These practices lead to grading inflation (Arrafii, 2020; Zulaiha et al., 2020). Grading inflation occurs when teachers consider academic and non-academic factors and internal or external factors (Arsyad Arrafii, 2020; Brookhart et al., 2016; Chen & Bonner, 2017; Cheng & Sun, 2015; Cox, 2011; Guskey & Link, 2019; Isnawati & Saukah, 2017; Karagül et al., 2017; Pulfrey, 2013; Randall & Engelhard, 2010; Widiastuti, 2018; Yesbeck, 2011; Zoeckler, 2007; Zulaiha, 2017).

6.   Conclusion

Classroom assessment standards contain several practices that teachers should follow. Notably, the Indonesian curriculum regulates the practices of EFL teachers in the national assessment standards and generally uses Brookhart's educational assessment standards. Indonesian EFL teachers did not frequently report the assessment results to students' parents, give feedback and follow-up on student works, and assist students to use the result for further education. In terms of assessment evaluation, teachers could not report and be involved in school and regional policymakers. However, due to the pandemic, they did not maximize classroom assessment standards as online learning assessment differs from traditional ones.

Thus, adjustments and modifications in assessment practices happened to cope with the pandemic situation. This situation causes ineffective washback and grade inflation.

Recommendation

The finding of this study gives theoretical and practical significance for implementing and evaluating classroom assessment practices amid the pandemic. Further, since this study took place in a particular situation, it signifies some recommendations for the future studies such as presenting specific and comprehensive theoretical frameworks about online assessment and grading and investigating the differences of online and face-to-face assessment and grading whether during the pandemic or post pandemic situation.

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The Vision and Preference of International Students Enrolled in a Japanese Language School Post-Pandemic

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Abstract

In 2022, Japan re-opened its border creating a new wave of students coming to Japan. In the summer of 2022, we investigated a group of 36 international students, coming from eight countries, who are currently enrolled in a Japanese language school in southern Japan. We conducted a rapid survey using a qualitative approach, asking the participants about the reason why they decided to come to Japan for studying Japanese, who were influencing the decision-making process, their priority goals while staying in Japan, their preferences for the place to live and study, as well as their intention for getting a job in Japan. The results showed that the students who came to Japan tend to have more long-term visions such as gaining a degree, specialty, job, or knowledge than short-term goals such as experiencing life in Japan. More students reported making the decision to come to Japan by themselves. Many of them reported a specific field or school that they want to enroll in after checking out from the Japanese language school. While a few of them wanted to enroll in higher education, more participants preferred to enter vocational school or just start job hunting. Most of the students showed hope to find a long-term job in Japan, while over a half seemed to prefer a quiet locality to live in. These results imply that the new wave of international students in Japan may show diversified needs and preferences, and it may need further research for effective recruiting strategies.

Keywords: International Students, Japanese Language School, Vision, Preference, Post-Pandemic

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Introduction

The COVID-19 pandemic has caused disruption for international students inbound to Japan. Travel restrictions had been taken by the Japanese government since January 2020, resulting in canceling or postponing acceptance, and mostly had impacted non-regular courses. Right after the COVID-19 outbreak, the number of international students in Japan decreased by 10.4% from 312,214 in the previous year (JASSO, 2020). Since March 2021, it was decided to continue this measure for the time being, except for "special circumstances", even after the state of emergency was lifted. In April 2022, after two years of disruption, Japan re-opened its border again, at first for MEXT scholarship receivers only, then a few months later, for all categories of students, creating a wave of inbound to Japan.

There was evidence that the life plan of students was disrupted or changed for both students who were about to go to study abroad prior to the outbreak and students who have already enrolled abroad prior to the outbreak (Bista et al., 2021). The impact of COVID-19 reached overseas students who were planning to study in Japan. Immigration restrictions have prevented many international students from coming to Japan, forcing them to change, delay, or give up their plans to study abroad. Many schools guarantee online educational opportunities for international students who cannot enter the country. Many students unable to arrive in Japan at the scheduled time because of the Covid-19 pandemic had to take online classes overseas. Online classes have expanded the possibilities of learning across borders but studying abroad is not just about studying (Murata, 2022).

In our previous papers, we have reported the literature review about push-pull factors related to studying in Japan (Tran & Jin, 2021), support from universities provided to international students that could be seen as pull factors (Tran et al., 2022), and challenges in attracting international students to Japan (Tran & Jin, 2022a). In the current study, we investigate the motivation of study in Japan as well as the life course plan of the students in the period after the pandemic, this paper aims to show: (1) Why students decided to go to Japan to study; (2) Who influenced that decision; (3) Goals to be achieved in Japan: (4) Preferences of students regarding future choice of school and locality; (5) Job of preference in Japan; (6) Influence of COVID-19 over their course of study abroad.

Method

We designed a conceptual framework (Figure 1) to make clear the goals and purpose of this study. This study investigated three periods of the participants' life. For the period before going to Japan, they were required to recall when they had been residing in their home country, how was their intention to study abroad, and who had influenced their decision. During the present period, they were requested to clarify their goals in Japan, preferences for their future study, choice of school and locality, and intention to find a job in Japan. A cross-sectional survey was designed for collecting qualitative data using a structured qualitative data form, consisting of open-ended questions. The form was designed in a bilingual Japanese-English format. The participants were international students enrolled in a Japanese language program in Japan. We conducted data collection in July 2022 at a Japanese language center where the survey was announced to participants in a session. The survey was fully anonymous and no data to identify the person had been recorded. After obtaining informed consent, the participants were invited to fill out the forms. Participants could choose to exit the survey anytime during the process. We made a qualitative analysis of

the data obtained by using the KH Coder (*KH Coder*, n.d.). Word clouds were produced using a free online word cloud generator (*Word Cloud Generator*, n.d.).
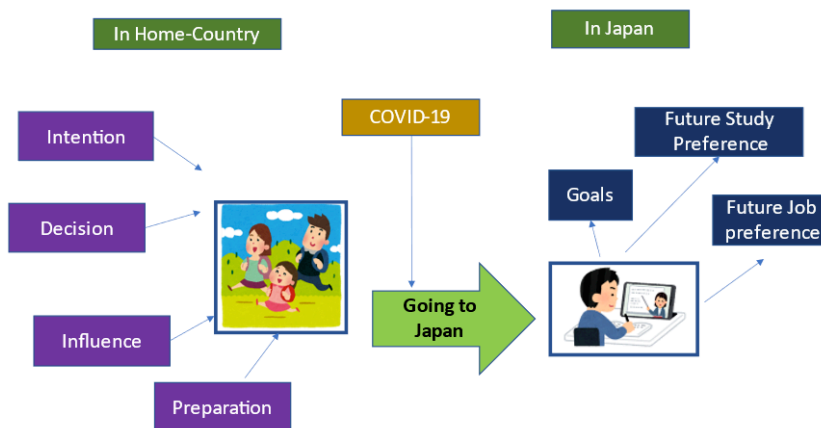

Figure 1: Conceptual Framework of the study

Results

Characteristics of respondents

Since the onset of the pandemic in 2020, the number of international students enrolled in the concerned school was reported to be decreased by two third. At the time of the survey, there were 64% female students and 36% male students enrolled in the Japanese language program. Respondents reported coming from eight different countries, namely Vietnam, Nepal, Myanmar, the Philippines, and Taiwan. China, Indonesia, and Turkey. Students from Vietnam and Myanmar consisted of the highest number per country. China, Indonesia, and Turkey were represented only by one student per country. Most of the respondents were the age of 20-23, with only an exception of a student who reported to be over 30 years old. Most of the respondents reported being in Japan for less than six months, with a few exceptions of some students who reported to have been staying in Japan for over two years. For verifying questionnaire comprehension, respondents chose their corresponding level of language proficiency. According to the preliminary poll, more than a half of students reported to have a Japanese language N5 level by self-evaluation, and a third to have N3 level, but actual interaction with the respondents during the sessions had shown that the actual proficiency might have been lower than self-evaluated. Regarding English proficiency, about half of the respondents think reported to be beginners while another half placed themselves at an intermediate level.

Figure 2: Education before coming to Japan

Figure 2 shows education level of the respondents prior coming to Japan. Two third of the respondents were high school graduates or below. Only five respondents have associate level and 7 respondents have bachelor level of education.

Why you decided to go to study in Japan

Figure 3A: Why decided to go study in Japan

The first open-ended question extended to the students was "Why you decided to go to study in Japan". Figure 3A shows the word cloud displaying the answers of the respondents. We keep the words that respondents answered in English and translated the Japanese answer into English using a standard dictionary. The highest frequent words seemed to be "study", "culture", "language", "job", "future", "hard work", "university", like", "best", "peaceful", "dream" …
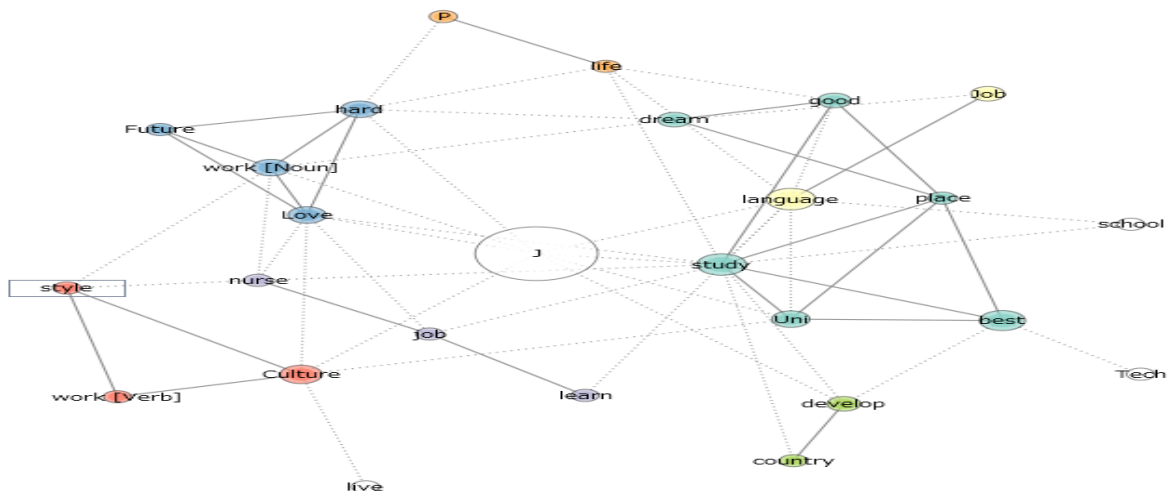
Figure 3B: Why decided to go study in Japan (analyzed by KH Coder)

Analysis by KH Coder as shown in Figure 3B demonstrates that decision to go to Japan for study can be grouped into "Study" cluster, including university, language, technology, dream, nursing, developed country, best place. Another cluster was "Future" including words such as job, work, hard, learn. The final cluster is "Culture", which connects words such as style, live.

Who influenced your decision to go to study in Japan

The second open-ended question extended to the respondents was "Who influenced your decision to go to study in Japan". Figure 4A shows the word cloud displaying the answers of

the respondents. The highest frequent words seemed to be "family", "mother", "teacher", "friend", "parent", "sister" …
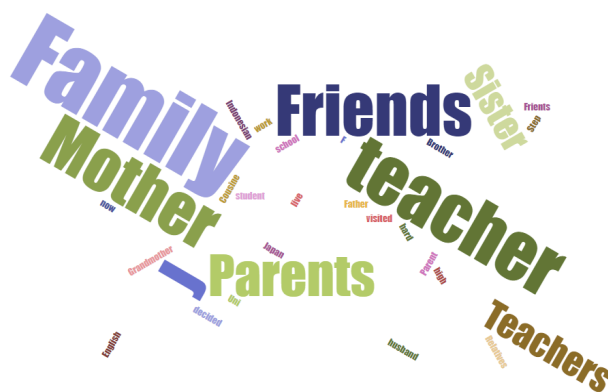
Figure 4A: Who influenced your decision

Analysis by KH Coder as shown in Figure 4B demonstrates that the most influential decision to go to Japan for study was made my "myself", seconded by the cluster "mother", "father", "parents". Another big cluster was related to "teacher" and "friend".
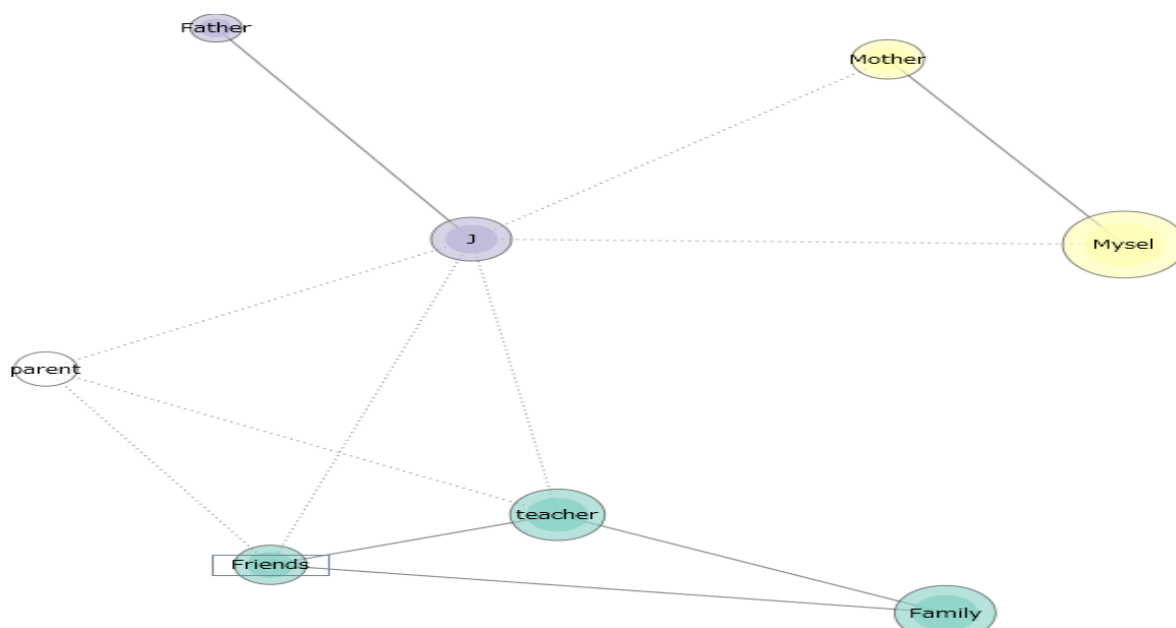
Figure 4B: Who influenced your decision (analyzed by KH Coder)

Your goals in Japan

The third open-ended question extended to the respondents was "Your goals in Japan". Figure 5A shows the word cloud displaying the answers of the respondents. The highest frequent words seemed to be "job", "study", "language", "degree", "lifestyle", "knowledge", "experience" …

Figure 5A: Your goals in Japan

Looking at the interrelationship between these words by KH Coder as shown in the diagram (Figure 5B), it could be inferred that the major goal in Japan of the respondents was around the cluster "study", either language, other skills, or "graduate school". Other clusters could be "experience" which involves lifestyle, and "job".
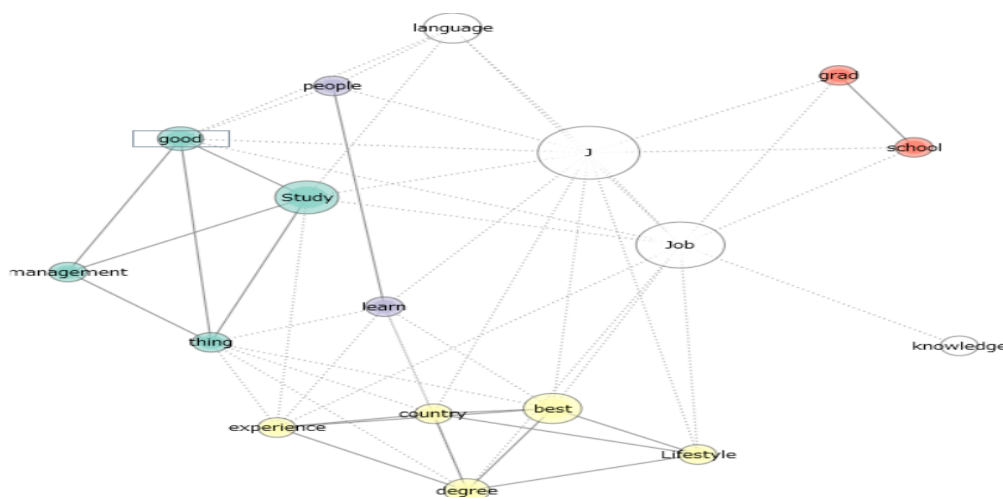
Figure 5B: Your goals in Japan (analyzed by KH Coder)

Your university of preference?

The fourth open-ended question extended to the respondents was "Your university of preference (in Japan)". Although many of the respondents did not seem to have a plan to enter university after finishing their language study, they still revealed some level of preference. Figure 6A shows the word cloud displaying the answers of the respondents. The highest frequent words seemed to be "national", "public", "technology", "economics", "business", "nursing", "big", "Osaka" …

Figure 6A: Your university of preference

Looking at the interrelationship between these words by KH Coder as shown in the diagram (Figure 6B), it could be inferred that the preference for university in Japan could be in the type of university as national or public, the type of specialty such as Economics and Nursing, and the place could be a big urban area such as Osaka.

Figure 6B: Your university of preference (analyzed by KH Coder)

Your locality of preference

The fifth open-ended question extended to the respondents was "Your locality of preference (in Japan)". Figure 7A shows the word cloud displaying the answers of the respondents. There are two clear trends within the answers. The first trend is to prefer "quiet", "peace", "rural", "safe", "beautiful", and the second trend sticks on "Osaka", "Fukuoka", "urban", "city", "crowded", "people", "busy", "convenient".

Figure 7A: Your locality of preference

Looking at the interrelationship between these words by KH Coder as shown in the diagram (Figure 7B), it could be inferred that the preference for locality in Japan could be a specific big urbanity the like Osaka or Fukuoka, or a place to be quiet, beautiful, convenient.
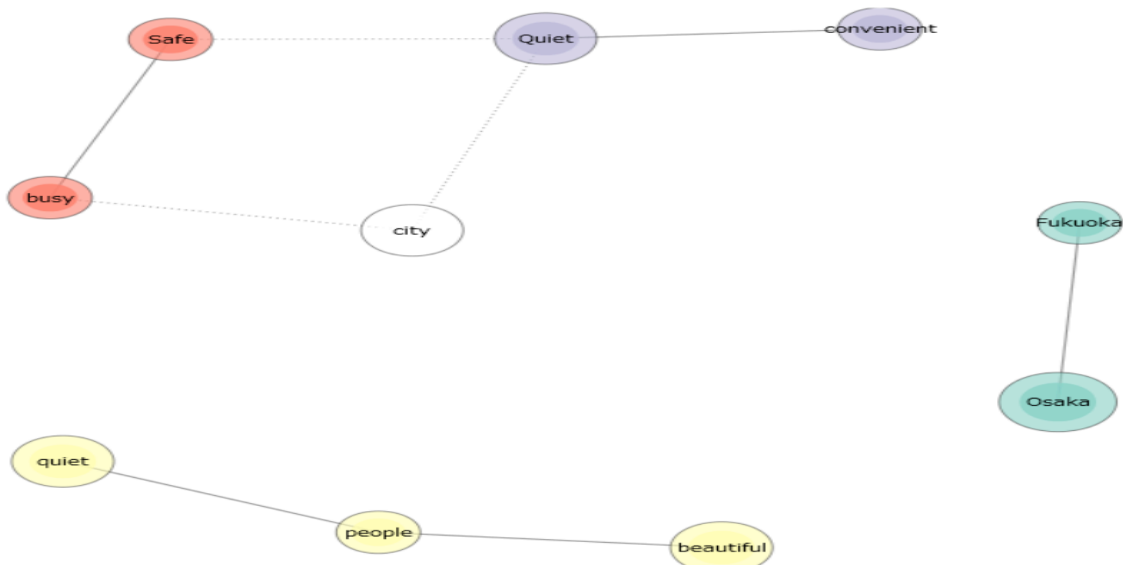
Figure 7B: Your locality of preference (analyzed by KH Coder)

Your job of preference

The sixth open-ended question extended to the respondents was "Your job of preference (in Japan)". Figure 8A shows the word cloud displaying the answers of the respondents. There are three clear trends within the answers. The first trend is to prefer health care sector such as "nurse", "occupational therapist". The second trendt is related to tourism business such as "hotel", "restaurant", "economic", "translator". The third trend sticks on social worker jobs such as "teacher", "child", "environment".

Figure 8A: Your job of preference

Looking at the interrelationship between these words by KH Coder as shown in the diagram (Figure 8B), it could be inferred that the preference for job in Japan could be a health care and pharmacy cluster, business and management cluster, tourism cluster, education cluster, agriculture cluster, fashion, and design cluster. The desired job must be highly paid, enjoyable, with benefit, non-toxic, as shown in the diagram.

Figure 8B: Your job of preference (analyzed by KH Coder)

Impacts of COVID-19 pandemic on the study abroad plan
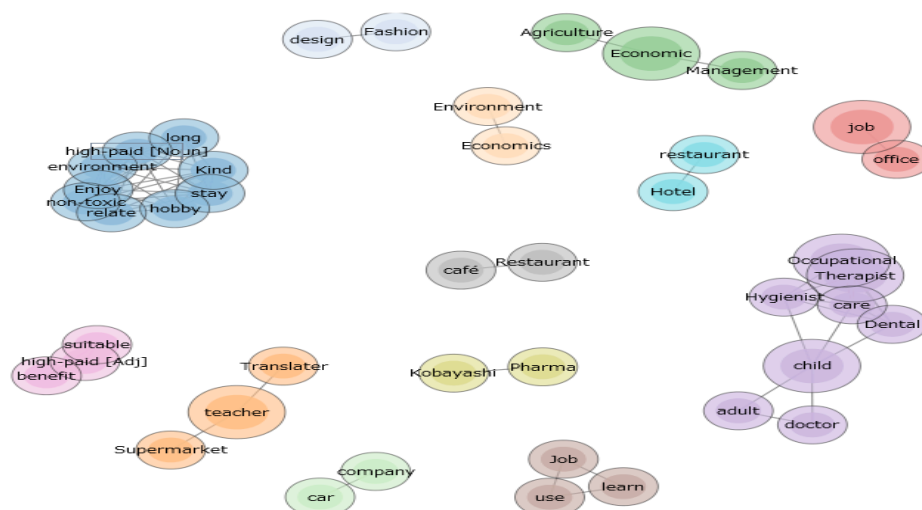
Some of the respondents stated the difficulty when they had to wait for a year or more before they could depart for Japan. The other said they had to stay at the same school for longer than planned because their initial plan has been changed. But the respondents are still in better position than some of their mates who had to give up the study abroad plan while waiting the pandemic to end. Difficulty in finding a part-time job in Japan was also reported. Moreover, apparently, the pandemic has impacted mental status of international students related to perceived uncertainty about the future.

Discussion

In the present study, we intended to use quantitative method to explore the factors related to the whole study in Japan process of the respondents. After completing this phase, we plan to use the results for designing the next step of our project, to conduct a quantitative study to further clarify the obstacles.

Regarding the question why the respondents have chosen Japan as their study abroad destination, our results has shown some consistency with various studies in the past. We found that the respondents were motivated by the characteristics and uniqueness of Japan such as culture, language, hardworking attitude, advanced country, best environment for education, a peaceful country etc. They were also motivated by the prospects of future living in Japan, having job, entering university, realizing their dream. Comparing to the push-pull factors concepts of study abroad (Mazzarol & Soutar, 2002), the present study has shown some of the reason to choose Japan was push such as want to study, want a job, want to experience. Related to push factors found here, we could somehow see a paradigm shift from "getting education abroad and returning home" (Gareth, 2005) to a more immigration-intention push factors within this group of respondents. Regarding the pull factors, generally, the current study has found the pull factors coincided with the general pull factors of Japan as mentioned in previous studies (Tran & Jin, 2022b). The respondents have stated the pull reasons such as unique culture, best education, high-tech, safety.

To the question "Who influenced your decision to go to study in Japan", our findings demonstrate similar patterns of responses to previous studies. As the respondents are mostly

come from Asian countries where individuals are strongly affected by their families, it's not surprise that the respondents revealed that their family, mother, parents, father, sister are highly influencers, seconded by people in their close circle such as teacher or friend.

It was argued that international students' motivation to study abroad could be described by the level of their self-determined motivation to study abroad and by the type of goals they set for themselves while in a foreign country (Chirkov et al., 2007). In the current study, we also demonstrate that majority was mentioned "myself" as the person who make decision to go to Japan, well ahead of family or close circle. On the other hand, studies have shown that most of the students come from countries in Asia such as Nepal, Vietnam or China usually use a professional agent for studying abroad (Thieme, 2017), however, in the current study, it is surprised that no one mentioned that their decision were influenced by a study abroad agent.

Regarding the question about "Your goals in Japan", its seems that the respondents have revealed their goals in a very realistic long-term patterns either for study or for live plan, such as getting a degree, reaching Japanese language N1 level, going to vocational school, getting a job in Japan, becoming a permanent resident, etc. However, there are also goals related to experience such as to travel, to experience Japanese lifestyle, or to enjoy the Japanese culture, etc. This is consistent with the fact that basically, students enrolled in Japanese language schools are students who seek a long-term degree program and eventually employment in Japan.

Regarding the university of choice in Japan, we revealed that many of the respondents did not seem to have a plan to enter university, but rather choose to enter a vocational school where they can learn technical professional skills and can find a job in Japan in the fields related to tourism, health care or IT. The results show the preference of schools are similar to those identified by many previous studies. It was clear that they prefer national or public university, where the specialties such as technology, economics, business, nursing are taught. More respondents preferred big city such as Osaka, which is also consistent with many other reports. Some previous studies have also demonstrated the important factors such as "range of programs available" (Bodycott, 2009), but have not rate the reputation of institution as important, as the current study has.

About the locality of preference in Japan of the respondents, we have clearly found two trends of preference, as some prefer a big urban site while the others prefer a sub-urban site. The problems that international students face in universities have been well documented in the literature, either worldwide (Bodycott, 2009) or in Japan (Murphy-Shigematsu, 2002; Simic-Yamashita & Tanaka, 2010; Tanaka et al., 1994). Within the existing literature, however, few studies address non-urban contexts and prioritize the perspectives of international students in rural universities (Edgeworth & Eiseman, 2007). In the latter literature, however, the students who decided going to non-urban area were described as no better choice was offered to them, rather than they initiatively preferred the rural areas. Contrary to that, our findings demonstrated a clear preference to a quiet and non-urban place among a half of the group.

About the type of job preferred, presumably in Japan, the respondents seem to have very clear plan from the beginning, and they job of choice were very clearly stated, either health care sector, tourism business or other social jobs. There conditions come as the job must be highly paid, enjoyable, with benefit, non-toxic. Our findings in this study support the existing evidence. A study in Europe has shown that how to find a job upon graduation is apparently a

big concern for students, and opportunities for work upon graduation and earning money when studying matter more for non-European students (Nilsson & Ripmeester, 2016). In Japan, there is increasing need of hunting a job in Japan among international students and efforts for supporting this process are already in place (Uosaki et al., 2018).

As it is the first stage of our research plan, the current report could not be seen independently as conclusive and completed, since its results will be used to design broader research. The limited number of participants and number of their country of origin also should be interpreted with consideration. Due to limited time allocated to data collection, this study does not intend to collect quantitative-oriented variables such as field of study, status of scholarship, age, part-time job, income. In the next stage, more variables, as well as more sophisticated design such as cohort study, longitudinal study, intervention study may be considered. Some areas of focus could also be considered, such as mental health, exposure to over-information, influence of part-time job… Comparative data between countries and institutions could also be collected.

Conclusion

In this paper, the authors use the qualitative research approach to investigate the factors influencing decisions of international students to go to Japan, their goals and preferences in Japan as well as future prospect in Japan. Most of the respondents, who are studying Japanese language in Japan, are arrived in Japan in spring 2022, after Japan re-opened its border for international students. We explored the reason why they decided to come to Japan, who were influencing the decision-making process, their priority goals while staying in Japan, their preferences for the place to live and study, as well as their intention for getting a job in Japan. Our findings have shown that the students who came to Japan tend to have more long-term visions such as gaining a degree, specialty, job, or knowledge than short-term goals such as experiencing life in Japan. More students reported making the decision to come to Japan by themselves. Many of them reported a specific field or school that they want to enroll in after checking out from the Japanese language school. While a few of them wanted to enroll in higher education, more participants preferred to enter vocational school or just start job hunting. Most of the students showed hope to find a long-term job in Japan, while over a half seemed to prefer a quiet locality to live in. These results imply that the new wave of international students in Japan after COVID-19 may have diversified needs and preferences. These findings also demonstrated the need for further investigation on factors influencing international students' plan for drawing out new effective recruiting and supporting strategies.

Acknowledgment

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Producing Travel Vlogs as a Collaborative Task in English Classes With a Soft CLIL Approach

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Abstract

Producing travel vlogs is a way to record events and memories of a trip and share them with others. Takahashi (2022a) analyzed YouTube-style videos of six genres made individually by EFL university students and pointed out the necessity of adjusting the task for more collaborative learning and language learning. In response to this, the current study assigned a collaborative travel vlog producing task to new groups of EFL university students and addressed the following research questions. 1) How and to what extent does this task contribute to language learning and content learning in English communication classes with a soft CLIL approach? 2) Which task functions better as a CLIL task, a travel vlog producing task or a YouTube-style video making task? Twenty-nine students from two universities in Japan participated and produced 13 travel vlogs either in pairs or in groups collaboratively. Following the framework of Takahashi (2022a) to enable comparison, the content of the travel vlogs and the responses on the worksheets were analyzed qualitatively and the English voice-over was analyzed linguistically. The results showed that the travel vlog producing task enabled the participants to produce target linguistic expressions in an authentic context and that collaboration with their peers promoted active engagement in the task. Specifying the genre to travel vlogs helped to make the learning goals clearer both in terms of language and content, and therefore, the task proved to be more suitable as a CLIL task.

Keywords: Travel Vlog, English Language Education, EFL, CLIL, Task, Collaborative Learning

Introduction

The COVID-19 pandemic impacted the travel industry greatly. International travel became significantly difficult as countries closed their borders in order to restrict the inflow of people from outside of the country. In fact, the World Tourism Organization (2022) reported that the number of international tourists decreased by more than 70% in 2020 and 2021 in comparison to 2019. Domestic travel was also negatively affected by the pandemic because people were encouraged to minimize the time they spent outside of their home. In Japan, the first state of emergency was declared in April 2020, leading to a sudden drop in the number of domestic travelers. The government temporarily conducted a campaign to promote travelling in the latter half of the year. However, the total number of domestic travelers still dropped by half in 2020 compared to the previous year, and this trend did not change in 2021 (Japan Tourism Agency, 2021, 2022a).

In 2022, the number of domestic tourists gradually started to increase again in Japan (Japan Tourism Agency, 2022b, 2022c). With the relative containment of the pandemic, more and more people are resuming travelling. The number of international travelers is also rapidly increasing again across the world, "with arrivals reaching 62% of pre-pandemic levels in the first nine months of 2022" (World Tourism Organization, 2022). One way to record events and memories of a trip and share them with others is to make a travel vlog. A vlog means a blog in the format of a video, and travel vloggers have recently achieved popularity (He et al., 2022). There are numerous travel vlogs uploaded on video sharing websites such as YouTube (https://www.youtube.com/). A search on YouTube by using the keyword "travel vlogs" shows that vlogs on many countries are available on the platform.

English travel vlogs can be utilized as language teaching materials in English language classes. For example, Takahashi (2022b) pointed out that videos uploaded on YouTube are potentially suitable as authentic materials for learning different varieties of English. More specifically, the study focused on Asian Englishes and described corpus-based activities, audio-based activities, and video-based activities that had been carried out in the classroom. The study then suggested two activities, namely, finding videos activity and watching videos activity, as video-based activities for exposing students to Asian Englishes that could be carried out in a relatively short period of time during the class (pp. 622-623).

Students can play a more active role by engaging in video producing tasks and activities, and English language teachers have implemented such tasks and activities in the classroom (e.g., Chen, 2018; Hamilton, 2010; Hafner, 2014; H. Huang, 2015; H. W. Huang, 2021; Miller, 2007; Yeh et al., 2020). For instance, Aksel and Gürman-Kahraman (2014) conducted a survey to 100 university students in Turkey to assess the participants' perceptions of effectiveness of video producing tasks on their language skills and the process of language learning. The study showed that the university students' perceptions of the tasks were either positive or neutral, leading the researchers to conclude that the implementation of tasks involving the use of information technology tools can produce a positive impact in the language classroom. Indeed, mobile devices such as smartphones enable university students to diversify the ways they approach learning (Gikas & Grant, 2013).

This means that video producing tasks can be implemented in English communication courses as well. The current study was held in two English communication classes at two universities in Japan, and the lesson plans for both classes had been developed based on a soft CLIL approach. CLIL is the acronym for content and language integrated learning, which is

"a dual-focused educational approach in which an additional language is used for the learning and teaching of both content and language" (Mehisto et al., 2008, p. 9; see also Ball et al., 2015; Coyle, 1999, 2007; Coyle et al., 2009). The primary focus of hard CLIL is on content learning, whereas the primary focus of soft CLIL is on language learning (Ikeda, 2013). Both of the courses aimed to have students develop their English communication skills by using materials which also enabled them to acquire knowledge of topics relevant to today's society. At the same time, the emphasis of the courses was on language development, and therefore, the approach adopted was soft CLIL. Two other relevant approaches, namely, communicative language teaching (e.g., Littlewood, 2014; Richards & Rodgers, 2001; Savignon, 2005; Spada, 2007) and task-based language teaching (e.g., Ellis, 2003; Long, 2014; Nunan, 2006) also influenced the development of the lesson plans.

As mentioned above, studies have attested to positive effects of video producing tasks for language learning. However, researchers have tended to focus on perceptions of the participants or on the development of language skills and motivation rather than the content of the videos, and not many studies have analyzed the videos produced by the participants in detail. Takahashi (2022a) looked at this gap in the literature and reported the results of a YouTube-style video making task in English communication courses with a soft CLIL approach. The participants were allowed to choose any genre from videos observed on YouTube. The courses were held online due to the pandemic, and the majority of the videos were produced individually. By analyzing the videos and the comments, the study concluded that the task was an enjoyable and motivational task that could promote various aspects of learning.

However, there were two main demerits of the task implemented in Takahashi (2022a). One was the difficulty in providing focused language instruction because of the diverse variety of genres. The other was the lack of collaboration because of the format of the courses. Collaborative learning is defined as "instructional arrangements that involve two or more students working together on a shared learning goal" and its positive impact on learning has been proved (Van Leeuwen & Janssen, 2019, p. 71; see also Dillenbourg, 1999; Kaendler, 2015). In order to address the problems of the YouTube-style video making task, the current study limited the genre to travel vlogs, which was the most popular genre in the previous task, and implemented a travel vlog producing task in English communication classes.

There were two research questions in this study. 1) How and to what extent does a collaborative travel vlog producing task contribute to language learning and content learning in English communication classes with a soft CLIL approach? 2) Which task functions better as a CLIL task, a travel vlog producing task or a YouTube-style video making task? To investigate the second research question, comparison was conducted with Takahashi (2022a). In order to enable a direct comparison, it was necessary to follow the same framework. In the following, Takahashi (2022a) or the YouTube-style video making task refers to the task with no specification of the genre by the instructor. On the other hand, the travel vlog producing task, which is the focus of the current study, refers to the task for which the instructor specified the genre to travel vlogs.

Methodology

Participants and Context

Twenty-nine university students from two English communication classes participated in this study. They were from two universities (University A and University B) in Japan. In other words, this study was conducted in an English as a foreign language (EFL) setting. Seventeen students were first year students from University A, and 12 students were second year students from University B. Both classes were labeled as the upper intermediate level. The classes were held all in English, and the researcher herself was the instructor. This study took place in the fall semester (September to January) of the academic year 2021 when some classes were still held online because of the pandemic. The English communication class at University A met once a week for 14 weeks, and the classes were held online and on-campus alternately throughout the semester. The class at University B met once a week for 15 weeks; the classes were initially held online and on-campus alternately but were held on-campus every week from November. The students had studied with the same classmates in the spring semester, and they knew each other well.

Materials

The travel vlog producing task was assigned as the final project for both classes. Both of the classes had been using a textbook, and the participants had spent two weeks on topics relevant to media studies before being introduced to the final project. For pre-tasks, the instructor prepared a playlist consisting of 10 English travel vlogs she found on YouTube. The videos had been produced by different travel vloggers and were on various cities across the world. For the main task, the instructor prepared an instruction sheet and a worksheet. The instruction sheet outlined the details of the final project and also provided the grading criteria (language, content, delivery, structure, and length), and the worksheet had questions for the participants to look back on the project. The questions were kept the same as Takahashi (2022a) and asked the participants to describe the topic and important points of their video, things they liked about the project, and things they found difficult about the project.

Procedure

There were two pre-tasks before the main task. First, the participants watched short segments of several of the travel vlogs from the YouTube playlist the instructor had compiled. They were then asked to identify salient features of the content of the travel vlogs in groups. The instructor also encouraged them to watch other travel vlogs outside of the class time. Second, the instructor pointed out frequently occurring expressions and vocabulary in travel vlogs and drew the participants' attention to linguistic features observed in travel vlogs by using examples from the vlogs they had watched as the first pre-task. The instructor also emphasized that it was important to use descriptive adjectives and adverbs to convey the atmosphere of the places.

The participants then chose a partner or group members and spent the rest of the class time to start planning their vlog. They then had around one and a half months to complete the task by following these six steps: choosing the place(s) to visit, planning the vlog, filming the vlog, editing it, checking it, and uploading it onto OneDrive with the worksheet. The video had to be at least five minute long in the case of pair projects, and seven minute long in the case of

group projects. In the final class, the participants watched the travel vlogs together and made comments on each other's vlog. The instructor also provided feedback to the class at the end. All of the participants indicated that they would let the instructor analyze their travel vlogs and report the results for academic purposes.

Results and Analysis

All the vlogs were collaborative projects, and 13 videos were produced in total. Ten were pair projects and three were group projects. The average length of one vlog was five minutes and six seconds. The data were analyzed from the two aspects of content and language, following the framework of Takahashi (2022a), to enable a direct comparison with this previous study. This was also because the classes were based on a soft CLIL approach.

Learning Goals

It is necessary to describe the learning goals of the travel vlog producing task before analyzing the data. Regarding content, there were four learning goals: 1) To be able to choose places both members are interested in, gather information on potential spots to visit online, and make plans for the vlog. 2) To be able to record and summarize important moments of the trip in the format of a video. 3) To be able to edit and produce a vlog that is informative and educational for the audience to watch. 4) To be able to work on the project collaboratively with their partner. The 4Cs framework, which consists of content, cognition, communication, and culture or community, has been one of the leading frameworks of CLIL (Coyle, 1999, 2007; Coyle et al., 2009; Mehisto et al., 2008). These content learning goals of the task were mainly relevant to content, cognition, community/ culture among the 4Cs of CLIL.

There were also four learning goals regarding language: 1) To be able to introduce places they visited in English. 2) To be able to use a wide range of expressions and vocabulary accurately to talk out the places they visited. 3) To be able to speak English clearly and fluently. 4) To be able to control the speed and the level of English so that the audience can understand the vlog easily. These goals were mostly relevant to the communication aspect of the 4Cs.

Content

Following Takahashi (2022a), this study analyzed the content of the vlogs in terms of their pattern, features of frequent occurrence, additional features, and commonly observed themes in the comments. Unlike Takahashi (2022a), all the videos were of the same genre because of the requirement of the task.

Patterns and Examples

The travel vlogs were categorized into four patterns based on their content as shown in Table 1. The first pattern focused on various tourist spots in the city or prefecture the pair had chosen. Six vlogs were in this pattern and each video introduced tourist spots in Osaka (two videos), Kyoto (two videos), Kobe, or Shizuoka. The second pattern focused on one specific tourist spot. There were three videos of this pattern, describing places such as an airport in Osaka and one of the local botanical gardens near University B. The third pattern highlighted shops and restaurants such as bakeries and ramen restaurants in one area. Three videos

showed this pattern. The fourth pattern was on events (one video), and the video focused on winter illuminations. In the YouTube-style video making task, all the travel vlogs were of the first pattern. This was probably because those who wanted to choose other genres could freely choose their topic in that task. In other words, in the travel vlog producing task, the participants tried to find suitable topics for them within the given framework. For each pattern, screenshots of a representative vlog are shown below in Figure 1 to Figure 4 along with some of the comments provided by the participants who produced the respective vlogs.

Table 1: Four Patterns of Travel Vlogs

1. Various tourist spots	6 videos (46.2%)
2. One tourist spot	3 videos (23.1%)
3. Shops and restaurants	3 videos (23.1%)
4. Events	1 video (7.7%)
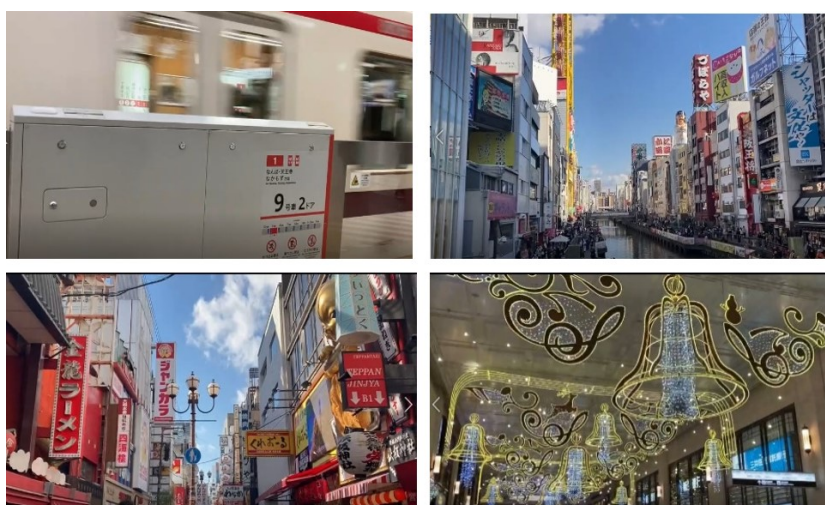
Figure 1: Osaka Travel Vlog

Figure 1 shows screenshots from the travel vlog of Osaka produced by a pair from University A. In this vlog, the students visited and introduced multiple sightseeing spots in one of the most touristic areas of Osaka. One of the students wrote, "We explained each spot in detail and made it an easy-to-understand video," and "We were able to work together on this project." The other student wrote, "I felt that I could deepen my relationship with my partner and improve my speaking English ability." As the comments indicated, the students emphasized that they enjoyed working together collaboratively.

Figure 2: Travel Vlog of Osaka International Airport

Figure 2 illustrates the second pattern. In this travel vlog, another pair from University A visited Osaka International Airport and introduced the airport in detail. One of the students wrote, "I learned about how to make a good opening movie from other vlogs on YouTube," and the other student wrote, "We could divide the work. For example, [my partner] wrote the manuscript, and I edited the video. Also, I don't usually take videos, so it was good experience." This confirmed that at least some of the students watched other travel vlogs outside of the class time in order to prepare for their vlog.
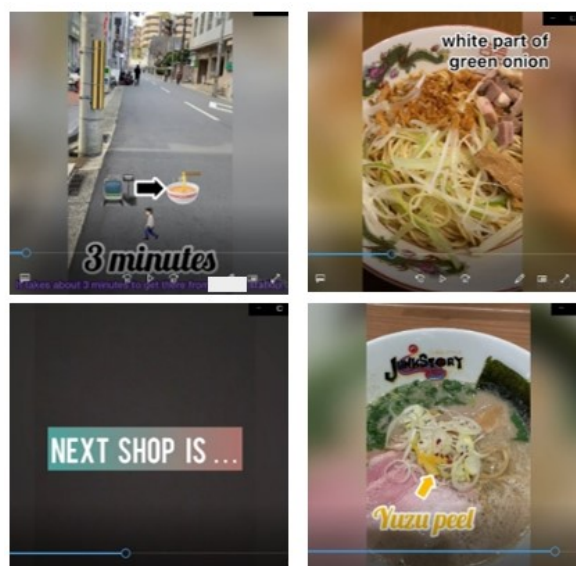
Figure 3: Travel Vlog Focusing on Ramen Restaurants

Figure 3 shows an example of the third pattern. In this vlog, two students from University A went to famous ramen restaurants near the university and introduced the route to the restaurants, their locations, and the ramen dishes of their recommendation. This pattern still qualified as a travel vlog because the students explored the area of their choice. One of the students wrote, "I experience[d] making [a] 5-minute movie for the first time," and the other wrote, "I chose simple English word[s] in after-recording." This indicated their awareness of the audience when they produced the vlog.
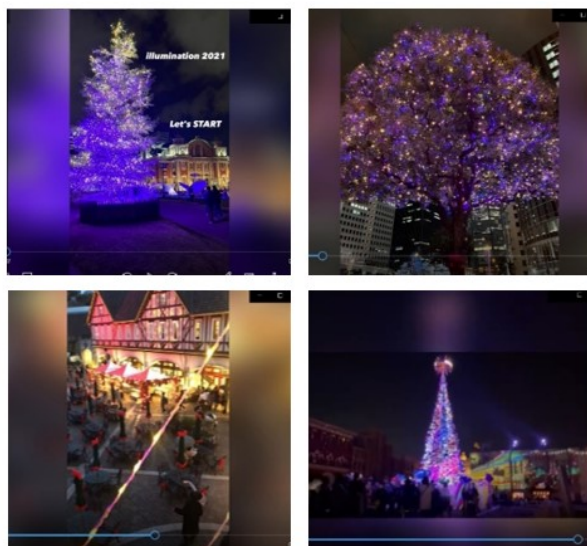
Figure 4: Travel Vlog of Winter Illuminations

Figure 4 shows screenshots of the vlog on winter illuminations in Osaka. This was the only vlog in the data that focused on special events. This was produced by a group of three students from University A, and one of them wrote, "[I]t was a lot of fun because […] there were various processes such as taking an image by myself, adding music, and adding audio. Also, I enjoyed watching the videos of other pairs and seeing the differences in how to shoot and edit the videos." This indicated that the task was an enjoyable process for the student who made this comment.

Features of Frequent Occurrence

The two features that were salient in Takahashi (2022a) were also frequently observed in the travel vlogs. First, English subtitles and on-screen textual information were often added to the vlogs. In the travel vlog producing task, eight videos (61.6%) contained textual information, and this was almost exactly the same proportion (61.7%) as in the YouTube-style video making task. However, a higher proportion of the travel vlogs (46.2%) contained detailed subtitles in comparison to the YouTube-style videos (21.3%). This indicated that more students added detailed textual information to the videos in the case of travel vlogs. This also helped the audience understand the content of the videos more easily.

Second, background music was often added to the vlogs. In fact, almost all the videos (12 videos, 92.3%) contained background music throughout the video, and this proportion was higher than that in the YouTube-style video making task (68.1%). The travel vlogs the students had watched as part of the pre-task had background music, and this might have motivated them to add background music to their vlogs as well.

Additional Features

Another feature worth noting was that most of the participants appeared in the travel vlogs. In more than half of the vlogs (8 videos, 61.6%), both members clearly showed their faces while showing around the tourist spots in the video. In addition, one of the members briefly made an appearance in four of the vlogs (30.8%), for example, when introducing the food at a restaurant. There was only one vlog (7.7%) in which the participants never made an appearance. In Takahashi (2022a), only 36.2% of the participants showed their faces in the

video. This means that the participants were more willing to appear in the videos in the case of the travel vlog producing task.

There are two possible reasons why there was this difference between the two tasks. One possibility is that the participants had more opportunities to interact with each other face-to-face on campus even though the atmosphere of the classes did not differ that much. Another, and more likely, possibility is that collaborative projects made it easier for the participants to appear in the video because one of the members could film the other member.

In addition, the participants demonstrated their editing skills by thoroughly editing their vlogs even though the detailed editing was not part of the requirement. Most of the participants used their smartphones rather than computers to edit the video. They used various applications, and the most popular application for editing among the participants was CapCut, closely followed by InShot.

Commonly Observed Themes in the Comments

The worksheets were submitted by all the participants individually. The researcher classified their comments regarding the task into positive points and points of improvement and identified themes which occurred repeatedly. As good points, the participants commented that the project was a good opportunity to spend time with their classmates. They also thought editing the vlog was fun and meaningful although it was challenging for some of them. In addition, they mentioned that the project became a chance to learn about audience awareness. Aside from editing, some of the participants raised the schedule management as one of the challenging points. These comments indicated that collaboration was the key of this travel vlog producing task. Even though it was difficult for some of them to manage the schedule, they enjoyed working with their classmates. The instructor had let the participants choose their own partner, and that was likely to have contributed to good teamwork.

Language

This study analyzed the language aspect of the travel vlogs in terms of vocabulary, expressions, sentence types, constructions, pronunciation, and paralinguistic features, following what Takahashi (2022a) had highlighted. All the participants had written a script before recording a voice-over, so the language under analysis was scripted spoken language. They were instructed not to use machine translation when writing the script. The researcher transcribed all the audio data before conducing this part of the analysis.

Vocabulary and Expressions

The average number of tokens per video was 383.3 and the average number of types was 160.9. This was calculated along with word frequency by using AntConc (Anthony, 2020) with Someya Lemma List (no hypens). Although the number of tokens was larger than that in the YouTube-style video making task (333.8 tokens on average) mainly because of the longer length of the videos, the average number of tokens (158.4 types on average) as well as TTR (0.441 on average in this task and 0.475 in the previous task) remained almost the same across the two tasks.

Table 2 shows words which appeared at a high frequency in the travel vlogs. The number in the parentheses indicates the raw frequency in the data. As the table indicates, high frequency

words tended to be common words such as take, eat, buy, bread, station, and shop. There were some differences from the YouTube-style video producing task, but this was likely due to the differences in the genre. The range of descriptive adjectives was still limited in the travel vlog producing task despite specific instruction and encouragement to use them. The infrequent use of higher-level words in the travel vlog producing task could be attributed the genre itself because travel vlogs did not necessitate the use of difficult vocabulary. This could also be because the participants had their audience in mind when they wrote the script for the vlogs.

Table 2: Words of Frequent Occurrence (Lemmatized)

Verbs	be (303), see (38), have (37), take (27), eat (26), buy (17), get (17), arrive (15), want (15), introduce (14), enjoy (13), come (12), let (11), walk (11)
Nouns and Pronouns	we (185), it (112), this (74), I (73), you (59), bread (32), station (26), shop (25), time (18), Christmas (17), Osaka (17), place (15), illumination (13), people (13), picture (12), point (12), cream (11), day (11)
Adjectives and Adverbs	there (78), very (32), beautiful (19), delicious (16), famous (9), again (8), finally (8), little (8), cute (7)

The students were able to choose and use accurate expressions that matched each scene and at an appropriate timing. For example, Figure 5 shows screenshots of a scene from a university campus tour vlog produced by a pair from University B. The name of the cafeteria is hidden in the figure. For this scene, one of the students added a voice-over, saying "It is not so crowded, so you can relax. If you have left your lunch at your home, this dining hall will help you. You can get a variety of food."
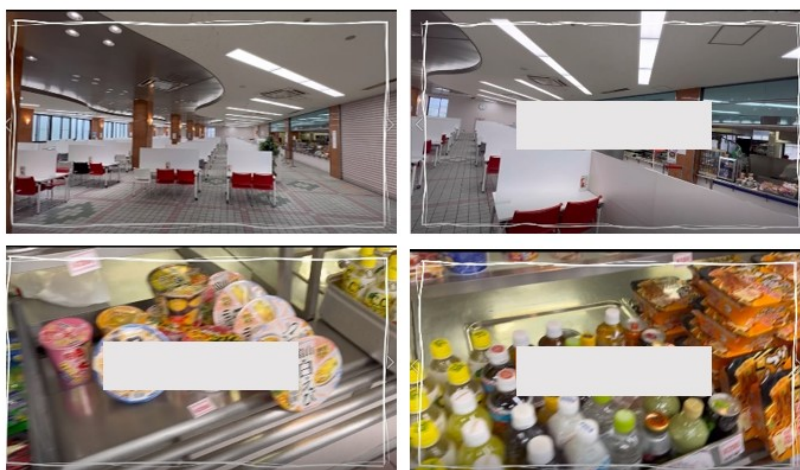
Figure 5: Introducing the University Cafeteria

Sentence Types and Constructions

The students were able to use a wide range of sentence types and constructions to describe the places they had visited. For instance, Figure 6 illustrates a scene from a travel vlog of botanical gardens in Osaka narrated by a group of students from University B. The left side of the screenshot was clopped in order to hide the names of the students. In this scene, the

students said, "Stepping into the first section, it's a humid tropical plant house. You are instantly immersed in the world of a tropical jungle. I enjoyed Lotus Garden. Water lilies are beautiful, and the leaves are so big!" In this part alone, the students used a participle clause and passive voice. In terms of the sentence types, this part contained two simple sentences, one compound sentence, and one complex sentence.
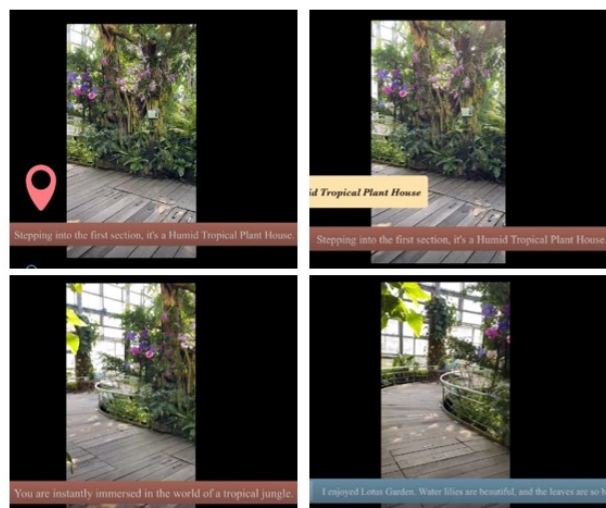

Figure 6: Travel Vlog of Botanical Gardens

At the same time, constructions such as past perfect and second conditional did not appear in the travel vlogs unlike in the YouTube-style videos. This might once again be attributed to the genre of travel vlogs itself. There were some grammatical mistakes such as mistakes regarding verb forms (e.g., after walk around…) and lack of articles (e.g., which is symbol of) in the voice over of the travel vlogs, but they did not affect comprehensibility. This was the same tendency as Takahashi (2022a).

Pronunciation and Paralinguistic Features

The same tendency as Takahashi (2022a) was also observed regarding pronunciation. The participants were able to speak English clearly and intelligibly in the vlogs. There were some Japanese English features such as the use of a voiced alveolar tap instead of a voiced alveolar lateral approximant in the audio data. All the participants added a voice-over in the travel vlog producing task, and this helped them speak English clearly because they could look at the script and could also record it multiple times until they were satisfied with the quality.

The majority of the participants showed their faces in the vlogs as stated above, and they were able to use paralinguistic features adequately and effectively. For example, the students who visited a café as part of their Kyoto travel vlog smiled at the camera together and showed their coffee to the camera.

Discussion

This study had two research questions. For the first research question, "How and to what extent does a collaborative travel vlog producing task contribute to language learning and content learning in English communication classes with a soft CLIL approach?", the travel vlog producing task enabled the participants to achieve all the four content learning goals of the task, indicating that this task fulfilled the content criteria of a soft CLIL task. The

participants also did well regarding language learning goals and demonstrated their English speaking skills. However, the range of expressions and vocabulary was not very wide and some of the participants could have worked on the clarity and fluency of their voice-over in English. The instructor had provided explicit and focused language instruction as part of the pre-task, but it might have been necessary to offer more advice during the script writing and practicing process to increase the accuracy and complexity of the English voice-over.

For the second discussion question, "Which task functions better as a CLIL task, a travel vlog producing task or a YouTube-style video making task?", each task had its own merits. The travel vlog producing task enabled an opportunity to provide focused language instruction because the genre was specific. In addition, it was possible to provide clearer learning goals in terms of content and language. Moreover, it enabled a fairer evaluation because the genre had been pre-determined by the instructor and the outcome was more predictable. For these reasons, this task seems to be more suitable as a CLIL task for classes which require more language support. On the other hand, the YouTube-style video making task allowed more flexibility. The participants could choose their genre freely, and thus the task became more engaging. This also meant that there were more opportunities for autonomous learning. Therefore, this task seems to be more suitable for advanced classes. For both tasks, working collaboratively in pairs or in small groups seems to enhance the quality of learning experience for classes with a friendly atmosphere because it can provide opportunities for collaborative learning.

Conclusion

In conclusion, the travel vlog producing task proved to be a suitable and motivational CLIL task in English communication classes with a soft CLIL approach in an EFL setting. It is a task that can promote collaborative and autonomous learning, audience awareness, and technology skills. In addition, it can provide clearer content and language learning goals compared to YouTube-style video making tasks. Explicit and focused language instruction is helpful, but what students learn in the pre-task stage is not necessarily reflected in the travel vlogs themselves. Therefore, it is necessary for language instructors to intervene in the process of script writing and practicing as well to help students improve the complexity and accuracy of the English voice-over. It is also difficult to encourage students to use higher level vocabulary in this genre, but other advantages seem to outweigh this demerit.

This study did not involve quantitative assessments of the participants' pre- and post-task English language skills related to travel vlogs, and this was a potential limitation. In addition, the English level of both classes was upper intermediate, and the possibility of implementing this task in a lower-level English class remains to be seen. Furthermore, the possibility of utilizing machine translation as language assistance can be explored with regard to travel vlog producing tasks in a future study.

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Reframing the Perspective in Teaching Science Investigatory Project in the Philippines

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Abstract

Teaching research in the Philippines is compartmentalized based on strands such as capstone and science investigatory project. Despite the difference in nomenclature, the process of teaching and even the competencies are somewhat the same. The main discrepancy of teaching research is on asking for specific construct when students do not have the sufficient exposure. In this study, a radical move is proposed as entry skill to self-regulating practice that will scaffold the students in accomplishing science investigatory project. Unlike the prescribed sequence in the DepEd, a series of activities was designed to improve (1) science abstract dissection, and (2) science abstract writing. The entire set of activities was named immersive science investigatory project module and the exemplars used were the high school SIP that competed in the International Science and Engineering Fair. The results were extracted from experts and four-school sequential implementation for the successive improvements. Expert evaluation indicated the high acceptability of the module. Performance of respondents in four pilot schools showed improved abstract dissection accuracy and improving lexical index trend on written abstract. The respondents also displayed a very good intrinsic motivation in undertaking all the activities. It is recommended that the module be tried in several schools to further refine the implementing protocols and strategies that will eventually lead to policy recommendation on research.

Keywords: Science Abstract Dissection, Science Abstract Writing, Capstone and Science Investigatory Project

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Introduction

Capstone Research Course is a culminating course for Science, Technology, Engineering and Mathematics (STEM) students under the guidance of research adviser that guides them to identify scientific, technological, engineering applications, or mathematical problems that address and provide solutions to community issues based on their results and conclusions in the investigation. However, most of STEM students encountered difficulties in choosing and deciding a research topic. Students find it difficult to finalize a research topic, lacked information about methodology, inability to find proper related literature and references, lack research interest, and time for research guidance according to Qasem and Zayid [1]. In searching related literature for a research topic, most results are more in the form of a scientific abstract than the entire paper. Students intended to discontinue reading the scientific abstract due to readability and lack of information in reading, analyzing, and writing scientific abstracts. Moreover, most of the contents of research books and materials include the basic concepts of qualitative and quantitative research but do not include how to analyze and write scientific abstracts. Scientific abstract is essential, mainly because it is the first thing readers will read, an overview of the crucial aspects of the research, and the initial requirements in participating in research conferences and presentations.

On the other hand, modules in reading, analyzing, and writing scientific abstracts are not present in public and private high schools. A module that teaches scientific abstracts is viable and valuable in innovation to help people access, assess, and communicate education studies and research findings. Larawan stated in his study about the acceptability of teacher–made modules, learning interventions in education should not just promise vague outcomes; it should also include a solid acceptable educational tool that will lead the students to mastery learning and practical learning-teaching process [2]. The module should have strong terms in physical aspects, objectives, instructions, learning, and language.

The researcher would like to develop a functional and acceptable immersive SIP Module as a foundation for writing Capstone Project. The module will train the students to accurately dissect an abstract and eventually be critical on any research abstracts and enable them to construct their own abstract based on a full study. This skill will addresses the gaps in developing and determining students' conceptual understanding, abstract research analysis, and crafting skills in writing scientific abstracts. The immersive SIP Module will be aided with the utilization of the Google Classroom as Learning Management System for the students to learn more and be more engaged in learning. This way, the module can be adopted by any schools that do not have commercial learning management system.

The term immersive is derived from the activities wherein students will be immersed on completed and published researches as a model of what they can do on their own research topic.

Evaluation of the module is based on the released guidelines of the Department of Education (DEPED) for evaluating General Reference Materials.

Results and Discussion

The first phase includes analyzing book references related to research writing, mapping out the curriculum guide, and identifying the prior knowledge among the STEM students will be determined using pre-assessment. The next phase involved developing, evaluating, and
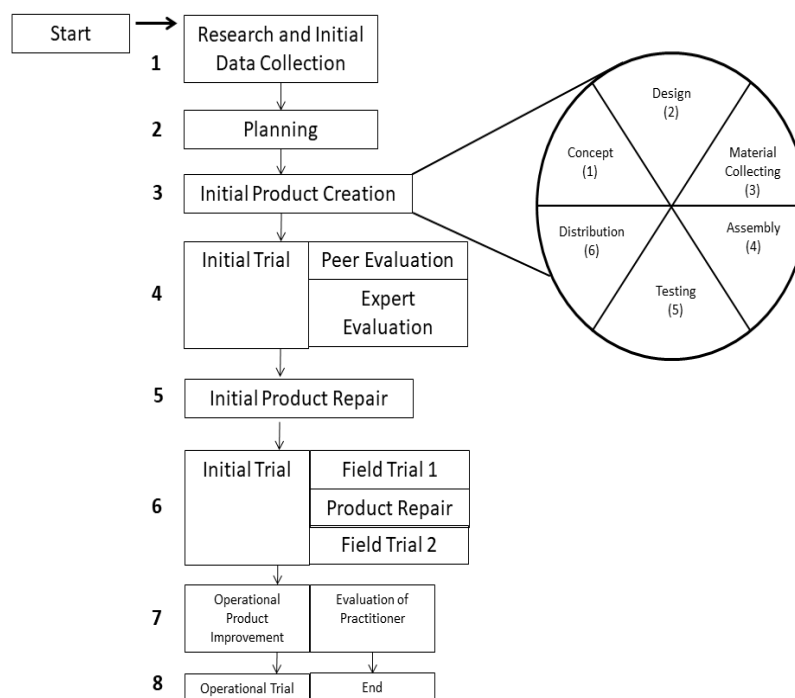
implementing the Immersive SIP Module. The implementation phase of the Immersive SIP Module will undergo preliminary implementation, first and second primary field implementation and final implementation. Lastly, presenting the skills of abstract dissecting through formative activities and skills of abstract writing in a series of full study papers. The developed Immersive SIP Module will be evaluated by the panel of experts, teachers, and students to assess its readiness and appropriateness. After the implementation, the students will receive an intrinsic motivation evaluation.

The components of the conceptual framework include prior knowledge of research and scientific abstracts, development of the Immersive SIP Module, achievement of the respondents in the pre-test and post-test, conceptual understanding, and perception of the learning activities. The respondents will be given a pre-test to assess their prior knowledge of research and scientific abstract. The process involves the development of an Immersive SIP Module and the evaluation and implementation of the material in the classroom. In developing the learning activity, the researcher will connect the objectives to the learning competencies of the K-12 Basic Education Curriculum. The materials will be evaluated by research teachers that are science majors, capstone project teachers, and science teachers. Conceptual understanding will be based on the achievement post-test result, and the perception will be checked through the activity perception questionnaire.

The study was conducted using descriptive design with development framework which executed three processes in this study, the development, evaluation, and series of implementations of the Immersive SIP Module. The pre-test assessed the students' prior knowledge of the topic, prior problem-solving skills, and comprehension skills. The result of the pre-test was compared to the result of the post-test to identify the normalized gain. At the end of the implementation, an intrinsic evaluation was given to students. It was conducted online using Google Meet with the Grade 12 STEM students of St. Paul Institute of Technology, Lugait Senior High School, MSU – Maguindanao Senior High School Department, and Liceo de Cagayan University – Main Campus were only students that have access in internet are able to participate in the online implementation.

The study can be extracted along with many parts of the development process. The study adopted the Borg and Gall model as utilized by Sukardiyono and Rosana [3] which defined the stages with iteration on development-evaluation-repair as the continuous cycle until the optimum version is declared to have been achieved [4].

FIGURE 1. *Stages with iteration on development-evaluation-repair*

The first was to identify and analyze the gaps needed for designing the Immersive SIP Module. It underwent planning and pre-evaluation to determine the possible learning experiences to be included in the module and accumulated validated and reliable content to be included in the development, evaluation, and analysis. There would be a revision of the Immersive SIP Module after the evaluation by the panel members, adviser, and experts. Then there would be a final content revision based on the comments and suggestions of the evaluators. A possible implementation of the developed Immersive SIP Module would be conducted in chosen schools. After that, a final evaluation would be conducted to identify the necessary updates for the module. Before the implementation, the researcher scheduled a virtual orientation via Google Meet with the participants and the cooperating teacher regarding the modes of implementation. The orientation aimed to introduce to the students the basic technical knowledge in participating in the immersive ISIP Module. During the implementation, the researcher followed a specific time allocation of 20 hours. The implementation schedule lasted for more or less two weeks. Google Classroom was the platform utilized by the researcher in the implementation.

Table 1 presents limitations on existing research books currently used in research, the addressed participants, and the limiting factors to the overall goal for developing the Immersive SIP Module. It also showcases the improvements for the limitation, the reason for the addressed participants, and the educational resolve for the limiting factors to the overall goal. Reference Analysis is conducted to identify the strengths and limitations of the existing research books currently used.

Limitations on Existing Research Books Currently Used in Research	Improvements
• Dissection or writing an abstract was not introduced.	• Writing scientific abstracts will be the highlight of the module.
• There is a need to provide more examples of the introduction, significance, methodologies, result, discussion, conclusion, and recommendation.	• Activities and examples will be a showcase for introduction, significance, methodologies, result and discussion, and conclusion and recommendation in an abstract scientific form.
• Choosing a topic for research is not adequately emphasized. No examples given.	• The module will be an assessment in choosing and deciding a topic for research writing.
Participants	**Reason**
• Grade 12 STEM Students	• They are required to accomplish and present a final paper at the end of the program; however, the learners' have difficulties in choosing and deciding a topic for research. They need preparatory instructional material, for that matter.
Limiting Factors to the Overall Goal	**Educational Resolve**
• Writing and reading scientific abstract was not introduced in the DepEd Curriculum Guide for Research/Capstone Project.	• To provide a recommendation that writing and reading of scientific abstract will be included in the curriculum for research/capstone project because scientific abstract is one of the primary references for research.
	• To provide instructional material to sustain competencies for reading and writing scientific abstracts.

TABLE 1. *Identified components to be addressed for the development of the ISIP Module*

The Immersive SIP Module was initially designed, checked and validated by the researcher, science teachers and advisers based on the analysis and initial data collection from the research references books to address the limitations of the Capstone Research Project. The module is initially planned to contained three (3) lessons and ten activities that is presented in table 2. Introduction to Scientific Abstract will be the introductory lesson which the components of scientific abstract will be highlighted namely; introduction, research significance, methodology, results and discussion, and conclusion and recommendation. A ten (10) item pretest will be given before the lesson starts and two activities in identifying the parts of the abstracts. After the introductory phase of the module, dissecting the scientific abstract will be the next lesson were three lessons with different assessments of dissecting will be given and one supplementary lesson to identify the equipment's and statistics used in the given abstract. Lastly, writing scientific abstract will be the last lesson were sets of full papers are given related to science, technology, engineering and mathematics.

Lesson 1: Introduction to Scientific Abstract	
Pretest	
Activity 1	Identifying Parts of the Abstract 1
Activity 2	Identifying Parts of the Abstract 1
Lesson 2: Dissection of Scientific Abstract	
Activity 3	Dissection Table
Activity 4	Dissection Highlight
Activity 5	Dissection Marks
Activity 6	Equip and Stat
Lesson 3: Writing Scientific Abstracts	
Activity 7	Write Your Own
Activity 8	Performance Task
Post Test	

TABLE 2. *Contents of the Immersive SIP (ISIP) Module*

The module contained and cited published scientific abstract from the International Science and Engineering Fair – Society for Science, where the authors are Filipino High School Students who joined every year to the said event and chose scientific abstract from the book of abstract of Samahang Pisika ng Visayas and Mindanao (SPVM) as a reference for the activities in the module.

The developed Immersive SIP Module was developed by the researcher with the assistance of the Thesis Advisers. It is all about components of the scientific abstract which focuses on how to read and analyze and write scientific abstract. Before the development of the ISIP Module, the researcher ensured that the contents and activities were focused only on the scientific abstract presented by Figure 2. The ISIP Module was developed intended for the Grade 12 STEM Students, and the time frame was given only for two (2) weeks. Each activity consisted of learning objectives for clarification, organization, and prioritizing learning.

Activity 1 – Identifying Parts of the Abstract I (15 minutes)
Learning Objective: To identify the parts of the scientific abstract.
Directions: Read the sample scientific abstract carefully.

Anti-Bacterial Agent Obtained From the Midgut of Cattle Leeches
Efrellene T. Galula
Agusan del Sur National High School, San Francisco, Agusan del Sur, Philippines
Category: Microbiology

Abstract:
Leeches in the Philippines are considered parasitic, useless, and a source of unpleasant emotions among leech victims and bystanders. This study significantly determined the presence of antibacterial agent from leech midgut as an effective source of natural antibiotics. Large mature cattle leeches were collected from free-flowing streams, ditches, canals and those that are attached parasitizing animals. The specimens were soaked in 15% ethanol and then dissected under the binocular dissecting microscope. The fluids in the leech midgut were extracted using heparinized tubes, suctioned and secured in the sterilized bottles. Crude ethanol extraction was done on the midgut fluids then antibacterial assay using *S. aureus*, *B. subtilis*, *E. aerogenes*, and *P. aeruginosa* through Filter Paper Disc Diffusion Method. Zones of inhibition were measured and compared to that of the positive control, chloramphenicol. Data analysis revealed that the crude midgut fluid obtained from cattle leeches significantly inhibited the growth of *P. aeruginosa*, *E. aerognes*, *B. subtilis*, and *S. aureus* respectively where zones of inhibitions are comparable to antibiotic chloramphenicol. Results concluded that cattle leech midgut fluid possesses antibacterial properties and therefore can be used as an alternative and

Activity 2– Identifying Parts of the Abstract II (20 minutes)
Learning Objective: To identify the parts of the scientific abstract
Directions: Read the two different scientific abstracts carefully. Answer the following questions and write your answer on the Information Table. Be guided by the rubric below.

First Scientific Abstract

Hibla: An Alternative Sound Absorption Material
Cayanan, Neil David, Gozun, Shaira and Tongol, E'van Relle
Angeles City Science High School
Category: Materials Science

Abstract:
Noise is a major concern in mechanical systems and poor acoustic facilities found in homes, schools and industries. Furthermore, environmental and health issues of commercially-available acoustic materials led the researchers to favorable processes and develop acoustic materials from biomasses. This study aimed to utilize Abacá (*Musa textilis*), Bamboo (*Bambusa merrilliana*), and Water hyacinth (*Eichhornia crassipes*) that have properties for sound absorption. These biomasses were fiber extracted, blended with polyester as carrier fiber in proportions of 50:50 and 25:75 (biomass-polyester), carded, and needle-punched producing non-woven sound absorbing panels. Afterward, Hibla (fiber) underwent tests of reverberation, soundproofing, and other parameters for a non-woven material. In the Non-Standardized ASTM C423-17, Abaca-Polyester 50:50 (0.106 SAA) performed best, surpassing the commercial Rockwool (0.058 SAA). Soundproof Test with Testo816-1 Decibel Meter resulted to 53.94 dB of Water hyacinth-Polyester 50:50, comparable to 53.93 dB of ambient noise (negative control) and 53.95 dB of

Activity 6 – Equip and Stat (40 minutes)
Learning Objective: To recognize the equipment and statistical techniques on the scientific abstracts.
Directions: Read the following scientific abstracts and identify the equipment and statistical techniques used.

1.

Spirulina Platensis: Potential Biosorbent For Lead
Jose Alfonso Aldas Casurra
Caraga Regional Science High School, Surigao City, Philippines

Biosorption, a biological method of removing heavy metal ions, is deemed as an inexpensive and effective alternative to physico-chemical methods in treating wastewater contaminated with heavy metal ions. This study shows the potential of using Spirulina platensis as an effective bio sorbent in removing lead (Pb) from wastewater. In this experiment, lead solutions were prepared and used to simulate wastewater. Spirulina platensis and lead acetate were obtained from the University of the Philippines Los Banos (UPLB). Four separate 90mL lead solutions, each containing 50 ppm of lead, were prepared and inoculated with 10 mL of S. platensis. Contact time with the *S. platensis* was varied: 6,12, 24 and 43 hours. At the end of each contact time, each lead solution was

Post-test (15 minutes)

Learning Objective: To explore the initial components of scientific abstracts.
Directions: Read the questions carefully and choose the correct answer that signifies what components of the scientific abstract it is.

1. Among the given statements, what components of scientific abstract exhibit the characteristics of a Results and Discussion?

a. Biological control agents, such as parasitoids, are now widely used to control the population of agricultural pests.

b. This project aimed to test the effect of oregano extract on the orientation and stimulation activity of the parasitoid, *Trichogramma japonicum*.

c. The results implied that Kalinga weavers are partly conscious or unaware that they possess a very high sense of symmetry, regularity and order because frieze pattern F7 (translation, horizontal and vertical reflection and rotation).

d. The weavers were designing more patterns for low class Kalingas compared to the other classes.

2. The statement "The design of the mechanical ambient vibration recorder (mAVR) was based on the IRIS Seismograph which uses electromagnetic induction and highlights the direct proportion between the movement of the ground and the prototype lever" implies what components of scientific abstract?

FIGURE 2. *Sample ISIP Module Activities*

Peer Evaluation of the Immersive SIP (ISIP) Module

The initial evaluation was conducted by 25 available science high school teachers that teach science subjects and mentored research studies/science investigatory projects. The initial evaluation was initially started by sending a formal invitation letter for module evaluation through email with the ISIP module's attachment and a google form evaluation for the research instruments to be used. The research instruments were adapted and modified and underwent validations first by the thesis advisers. Table 3 shows the descriptions of teachers' fields of specialization. Three (3) were biology teachers, four (4) chemistry teachers, fourteen (15) physics teachers, and lastly, four (4) general science teachers. They mentored research/science investigatory projects as their extracurricular duties.

Field of Specialization	Number of Teachers
Biology	3
Chemistry	4
Physics	14
General Science	4

TABLE 3. *Science High School Teachers Field of Specialization*

	Science Teachers		
	Mean	**Standard Deviation**	**Description**
Content	4.714	0.47	Highly Acceptable
Format	4.656	0.496	Highly Acceptable
Presentation and Organization	4.68	0.472	Highly Acceptable
Accuracy and Up-to-Dateness of Information	4.52	0.565	Highly Acceptable
Overall Rating	4.6425	0.50	Highly Acceptable

Description is based on the following scale. 4.51-5.0 (Highly Acceptable), 3.51-4.50 (Acceptable), 2.51-3.50 (Moderately Acceptable), 1.51-2.50 (Fairly Acceptable), 1.0-1.50 (Not Acceptable).
TABLE 4. *Overall Acceptability of Developed Immersive SIP Module*

As to the overall acceptability of the module, it has an overall rating of "highly acceptable" ($M = 4.76425, SD = 0.50$). This shows that the module has excellently met the standards, and no revision is needed. In particular, the science teacher rated the content the highest, with a mean of 4.714 and an SD of 0.47. The lowest rating accounted for accuracy and up-to-dateness of information ($M = 4.52, SD = 0.565$), yet both were highly acceptable.

Based on the results, the respondents agreed that the module is highly acceptable in terms of content, format, presentation and organization, accuracy and up-to-dateness of information, and its overall rating. This implies that the developed immersive module is promising to be effective and can serve as an instructional material in teaching scientific abstracts that will help the students learn at their own pace. The Immersive Science Investigatory Project (ISIP) Module was indeed valid and highly applicable for implementation as to its content, format, presentation and organization, accuracy, and up-to-dateness of the information.

Content	Mean Scores	Description
1. Content reinforces, enriches, and leads to mastery of specific learning competencies for the intended level and subject.	4.92	Excellent
2. Facts are accurate.	4.76	Excellent
3. Information provided is up-to-date.	4.88	Excellent
4. Language is appropriate for the level of the target user.	4.72	Excellent
5. Visuals are relevant to the text and suitable to the age level and interests of the target user.	4.60	Excellent
6. Visuals are clear in content and detail.	4.68	Excellent
7. Typographic layout/design adequately supports concepts presented.	4.72	Excellent
8. Size of the letters is appropriate for the target user.	4.88	Excellent
Overall Rating	4.77	Excellent

Legend: 4.21 – 5.00 = Excellent. 3.41 – 4.20 = Very Satisfactory, 2.61 – 3. 40 = Satisfactory, 1.81– 2. 60 = Poor, 1.00 – 1.80 = Not Satisfactory

TABLE 5. *Evaluation of the Science Teachers for ISIP Module as a General Reference Material*

As shown in Table 5, the science teachers provided excellent ratings with an overall mean of *M = 4.77* for the module as general reference material in teaching the concepts of scientific abstracts. This means that the module served as a factual information provider and a guide to in-depth information on the ideas of the scientific abstracts.

	YES	NO	Description
Physical Attributes	23	2	Complied
Book Layout and Design	24	1	Complied
Typographical Organization	25	0	Complied
Visuals	24	1	Complied
Overall Rating	**24**	**1**	**Complied**

TABLE 6. *Summary Evaluation of the Science Teachers for Module's Layout and Format*

Thus, based on the results, the overall recommendation for the module's layout and format in terms of physical attributes, book layout and design, typographical organization, and visuals complied with the layout and format. Table 6 shows that 24 out of 25 science teachers recommended minor revision for the module.

	YES	NO	Description
Coherence & Clarity of Thoughts	5.67	0.33	Complied
Grammar & Syntax	4.86	1.14	Complied
Spelling & Punctuation	4.33	1.67	Complied
Consistency of Style	5.4	0.6	Complied
Translation	5.875	0.125	Complied
Overall Rating	**5.227**	**0.773**	**Complied**

TABLE 7. *Overall Evaluation of the Language Expert for Module's Language*

As to the overall evaluation of the module's language, it has an overall rating of "Complied." This shows that the module has excellently met the standards, and minor revision is needed. In particular, the language expert rated the translation as the highest compliance rating with an average of 5.875, and the lowest compliance rating was for spelling and punctuation with an average of 4.33, yet both have complied. Based on the results, the respondents agreed that the module has complied in terms of coherence and clarity of thoughts, grammar, and syntax, spelling and punctuation, consistency of style, translation, and overall rating. This implies that the developed immersive module is promising to be effective and can serve as an instructional material in teaching scientific abstracts that will help the students learn at their own pace. The developed Immersive Science Investigatory Project (ISIP) Module was indeed valid and highly applicable for implementation as to its coherence and clarity of thoughts, grammar and syntax, spelling and punctuation, consistency of style, and translation.

In the final implementation, fifty-two (52) Grade 12 STEM students from Liceo de Cagayan University - Main Campus participated after their Inquiries, Investigation, and Immersion final defense, and it took fifteen (15) days to finish the module. Before the implementation, there was an orientation on the module and the process of submitting it. The module was uploaded in the Google Classroom as the Learning Management System. After the implementation, an evaluation was conducted to measure the intrinsic motivation of the STEM students.

N = 52	**Mean**	**Standard Deviation**	**Normalized Gain**	**Interpretation**
Pretest	7.6923	1.3216	0.724	High
Posttest	9.3654	0.7148		

TABLE 8. *Normalized Gain of the STEM Students for Final Implementation*

Results show that the normalized gain ($<g>$ = *0.724)* is high. This implies that there is sufficient evidence to claim that the module at this moment promotes understanding and much higher results than the pilot testing, first and second main field testing in terms of dissecting scientific abstracts in the Immersive SIP Module.
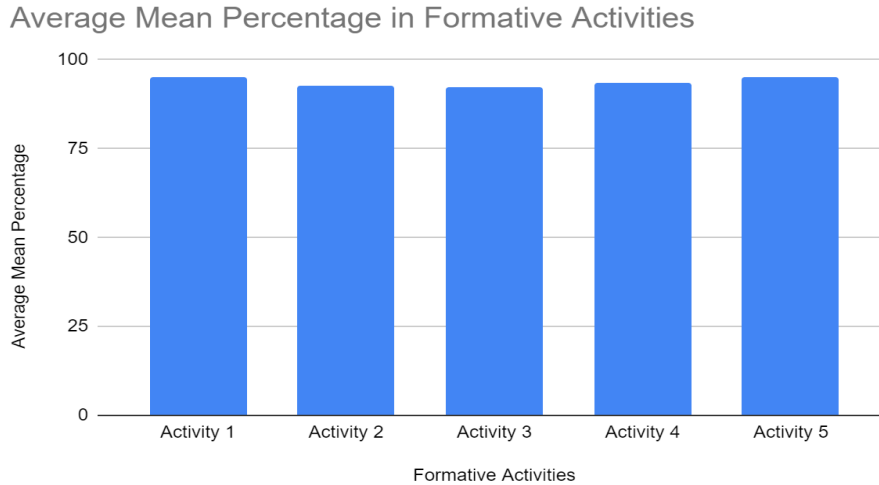
FIGURE 3. *Average Mean Percentage in Formative Activities*

The figure shows the formative mean percentage of the students in each activity in the module. Fifty (50) out of fifty-two (52) students got above eighty percent (80%) average, which indicates that the majority of them had good progress in answering the module. Both students, D35 and D40, got below eighty percent due to some incomplete answers in Activity 2. It also shows the average mean of each activity from Activity One (1) to Activity Six (6).

The figure also presents the average score per percentage change of each activity in the preliminary implementation. The average mean score for activity one (1) is *95.17% (5.71)*, activity two (2) is *92.70% (37.08)*, activity three (3) is *92.12% (9.21)*, activity four (4) is *93.46% (9.35)*, and activity five (5) is *95.19% (9.52)*. Activity six (6) is a supplementary activity to identify if the respondents can identify the equipment and statistics used in the given abstracts, which has an average mean percentage of 93.46% *(9.35)*.
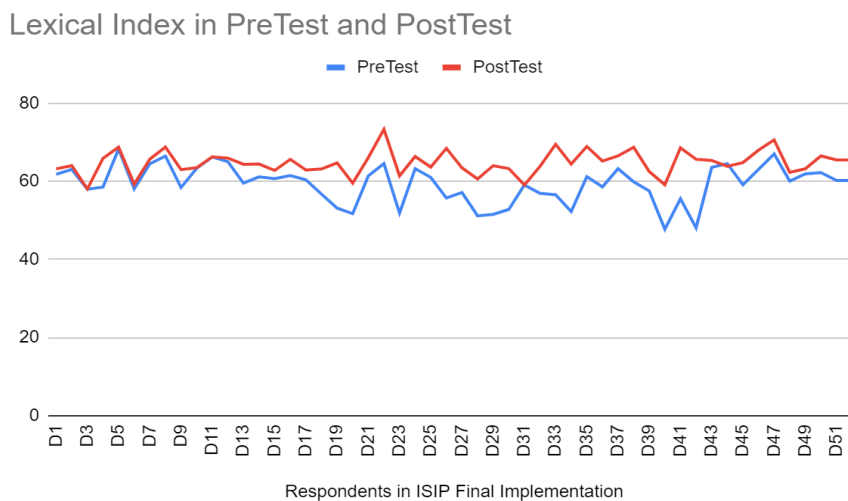
FIGURE 4. *Lexical Index in Pretest & Posttest of the STEM Students for Final Implementation*

The figure above shows the increasing progress of the students' pretest and posttest lexical index in writing scientific abstracts. The lexical index range is between 47.74 to 73.33, which indicates that the students' level is intermediate, the lexical index is high, and the readability

is relatively difficult. It showed that the quality of narrative of the respondents increased after going through the activities.
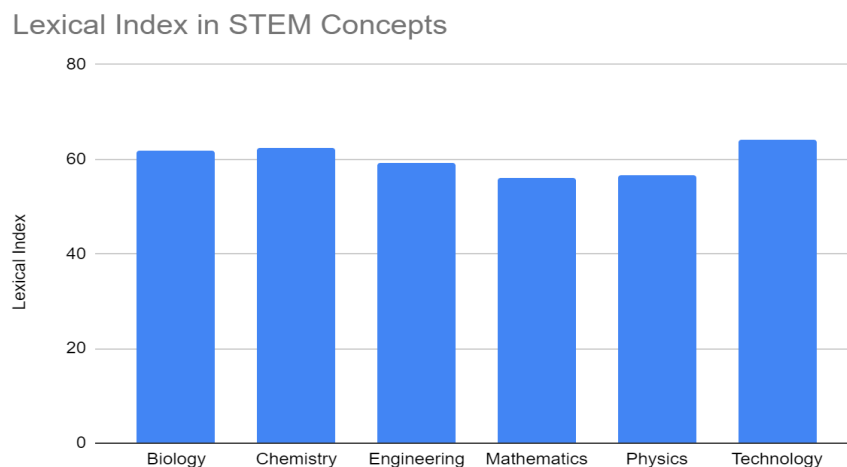
FIGURE 5. *Lexical Index in STEM Concepts of the STEM Students for Final Implementation*

The figure shows the progress of the students' lexical indexes of STEM Concepts in written abstracts. The average lexical indexes of Biology (61.72), Chemistry (62.51), Engineering (59.27), Mathematics (56.02), Physics (56.62), and Technology (64.19) indicate intermediate level with high lexical index and somewhat difficult readability. It showed that the respondents can write well on technology researches and much less on mathematical researches.
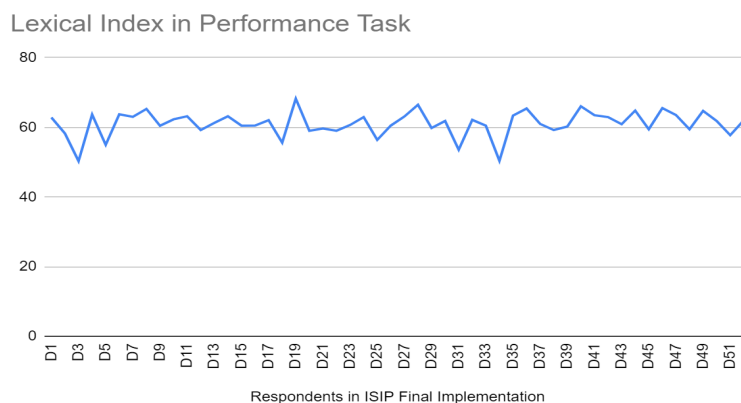
FIGURE 6. *Lexical Index in Performance Task of the STEM Students for Final Implementation*

The figure shows the progress of the student's lexical indexes in their written abstract for the performance task. The range of the lexical index of the students' performance tasks is between 50.31 to 68.24. It indicates intermediate level, high lexical index, and relatively difficult readability.
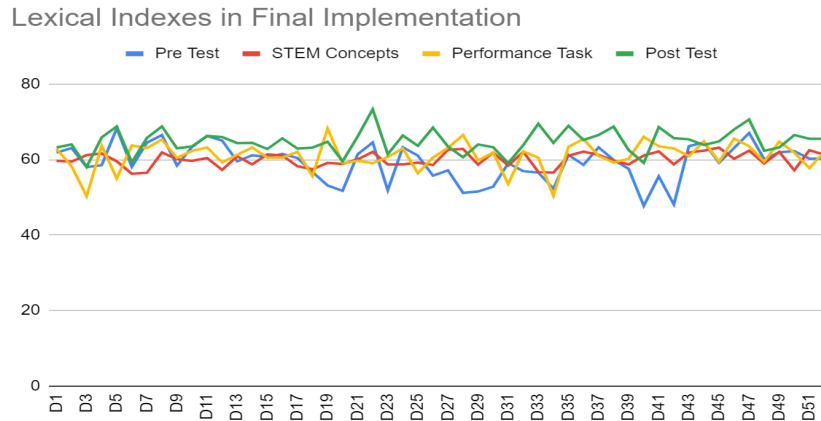
FIGURE 7. *Lexical Index of the STEM Students for Final Implementation*

The figure shows the progress of lexical indexes of the students in pretest, posttest, performance task, and STEM concepts of the students. The lexical range among the four activities is between *47.74 to 73.33.* Interestingly, there are respondents that performed poorly in the pre-test as indicated by the blue lines. The STEM concepts seemed to be of lesser lexical index compared to their performance task and very much observable is the lexical index increased on the post-test task.
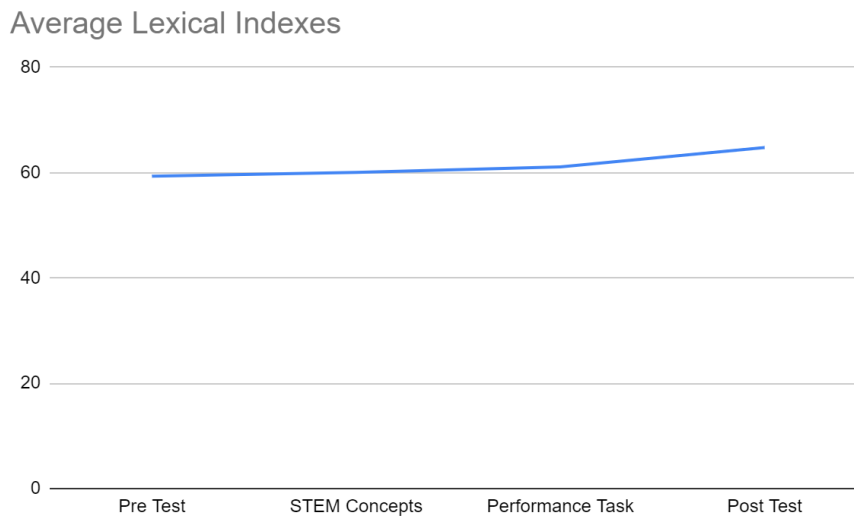
FIGURE 8. Average Lexical Index of the STEM Students for Final Implementation

The table shows an increasing progress average lexical indexes of the students among the pretest (59.34), STEM Concepts (60.06), Performance Task (61.08), and Posttest (64.77). These lexical ranges present the level of intermediate, lexical density of high, and the readability is reasonably difficult. The graph above showed the increase in lexical index from the four different clusters of writing activities.

Intrinsic Motivation	Average Mean Scores	Average Standard Deviation	Description
Interest/Enjoyment	3.231	0.646	Agree
Effort	3.498	0.612	Strongly Agree
Pressure/Tension	2.640	0.889	Agree
Choice	3.118	0.721	Agree
Value/Usefulness	3.701	0.461	Strongly Agree

Legend: 3.26 - 4.00 = Strongly Agree, 2.51 - 3.25 = Agree, 1.76 - 2.50 = Disagree, 1.00 - 1.75 = Strongly Disagree

TABLE 9. *Intrinsic Motivation of the STEM Students for Final Implementation*

It is shown in the table that the STEM students in the second primary field testing agree that they enjoyed and were interested *(M = 3.231, SD = 0.646)*, experienced pressure or tension *(M = 2.640, D = 0.889),* and had a choice *(M = 3.118, D = 0.721)* in answering the module. By making an effort to answer the module, the students strongly agree *(M = 3.498, D = 0.612)* throughout the implementation. Lastly, the STEM students strongly agree *(M = 3.701, SD = 0.461)* that the modules provide values/usefulness which is beneficial to them. The findings in the final implementation show intrinsic motivation contribution to the students where it resulted to enjoyment, they exerted effort, they perceived having a choice and that the module gave them pressure and tension.

Conclusion

Based on the result of the evaluation of the developed Immersive SIP (ISIP) Module, the module was evaluated based on the different criteria as Highly Accepted, evaluated Excellent as General Reference Material, and Complied for Modules' Layout and Format. The evaluation result for language experts, the developed Immersive SIP (ISIP) Module was rated based on the criteria as Complied. The respondents' performance in the formative activities for dissecting research abstract varies based on their knowledge of the concept. However, there was an increased progress from preliminary to final implementation, which was assessed by the normalized gain between pretest and posttest. It implies that the students learned how to dissect the parts of the abstract and signified a functional research abstract analysis. The respondents' performance in research abstract writing varies based on the given study provided by the ISIP Module. However, increased progress was observed from preliminary implementation to final implementation, which implies that the students showcase a skill of research abstract crafting skills with an intermediate and high lexical index.

In totality, the module can improve the research abstract dissecting skill and will also improve the quality of research abstract writing skill.

Acknowledgement

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Through the Eyes of School Leaders:
A Discussion of the Outcomes of a Leadership Development Training Programme

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Abstract
Citizen Leader Lab, a non-profit organisation, facilitates the Partners for Possibility (PfP) programme that provides leadership development and support to school leaders serving under-resourced communities in South Africa to ensure effective environments of learning. This is done by creating partnerships (dyads) between principals and private-sector business leaders over a 12-month period. This article describes principals' perceptions of their leadership capacities and changes at their schools after being exposed to a year-long leadership development training programme. A descriptive mixed-method study was conducted with 131 school leaders who had participated in the year-long leadership training and were exposed to workshops, group coaching, peer learning and experiential learning. Participants completed a post-programme questionnaire consisting of structured and unstructured questions. In addition, semi-structured interviews were conducted with them and their business leaders. The interviews were audio-recorded, transcribed and analysed using analytic software. Principals found the programme interesting and rewarding. They gained new leadership capacities such as resilience, improved confidence, communication and conflict resolution skills - catalysing into improved cultures of collaborative decision-making and environments for enhanced teaching and learning. New networks resulted in tangible outcomes (upgrades to school infrastructure, water and sanitation, nutrition) and/or intangible outcomes such as skills for members of school management teams (SMTs). Collaborative leadership led to SMTs being more aligned, efficient, and cohesive; teachers being more engaged and motivated; and parents being more involved in the schools and in their children's education. The PfP programme has the potential to lead to improved teaching and learning and new resources for schools.

Keywords: Collaborative Decision-Making, Collaborative Leadership, Community Involvement

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Introduction

The success of every school depends on effective management and leadership by school principals (Kirori & Dickinson, 2020). Effective leadership contributes to an improved education system, in which principals are key change agents (Acton, 2021; Ertem, 2021).

With the advent of the South African democratic government in 1994, the role and activities of principals changed, requiring them to have a combination of leadership and management capacities, including fundraising and human resource management (Kirori & Dickinson, 2020). According to the changes in the new education system, principals must lead, manage the school and ensure that the policies and programmes of the schools are executed in accordance with the South African Department of Basic Education (DBE)'s governance structures (Mazibuko, 2009). This has increased the principals` workload. In addition, difficulties from the Apartheid regime, such as lack of resources at schools attended by Black students, made school leadership in the post-Apartheid era a difficult task (Ngcobo & Tikly, 2010). Unfortunately, the changes in the education system have resulted in school principals not being fully prepared for their new role.

Although the Department of Basic Education made attempts to change this by introducing the Advanced Certificate in Education (ACE) programme, there are no mandatory programmes to prepare principals for this very important leadership role (Bush et al., 2011). In addition, while most principals have been outstanding teachers, many have not had access to transformational leadership development that is innovative, adaptive and collaborative to assist them with developing and motivating staff members, as well as increasing parental and community involvement in the school. Furthermore, principals have not had adequate support that empowers them to operate effectively in extremely challenging circumstances arising from poverty, social ills, inadequate facilities, child hunger and limited access to social capital (Mazibuko, 2009). According to researchers, South African principals require support to meet the demands of their new roles as 'Chief Executives' and in the development of supportive networks (Bush et al., 2011; Mahlangu, 2015; Romanowski, 2022). Therefore, leadership development programmes should aim to improve principals` leadership capacities, abilities and effectiveness to ensure school improvement (Bush & Glover, 2012; Bush, 2012).

It is well-known that a capacitated and supported principal can lead positive change within a school and create an environment that supports quality teaching and learning (Ertem, 2021; Leithwood et al., 2020). Day and Sammons (2014) has shown that such an environment consists of teachers who are energised to engage with students, lead their own professional development and ensure that all students have the best opportunity to be successful. Kwatubana and Molaodi (2021) mentioned that principals must engage in active listening to understand what teachers need to ensure quality teaching and learning. Principals should be willing to delegate authority in order to capitalise on expertise within the school (Karimi, 2021; Kwatubana & Molaodi, 2021). Additionally, principals must be empowered to create pathways to health and wellbeing for all teachers and should mobilise others to lead through collective engagement, resulting in joint practice (Harris & Jones, 2020; Kwatubana & Molaodi, 2021).

Communities also play a crucial role in supporting schools as they have assets, skills and capacities, and in turn, schools have a major impact on communities (Đurišić & Bunijevac, 2017; Schleicher, 2018). Greater community engagement offers several opportunities. Research has shown that increased parental involvement in children`s school and learning is

key to improving a child's morale, attitude and academic outcomes (Crosby, 2021; Đurišić & Bunijevac, 2017; Lara & Saracostti, 2019). Parents and communities are more likely to get involved in their children`s learning and in the school when they know what principals expect from them and what role they can play (Maluleke, 2014; Mbokazi, 2013; Chiuri, 2020). Harris and Jones (2020) is of the view that principals need skills to partner with parents and community groups as they (communities) have a wealth of expertise, knowledge and capacities that can be leveraged to improve teaching and learning.

Transformational Leadership

Transformational leadership in schools is pivotal and is associated with setting the vision and direction of the school (Day & Sammons, 2014). Transformational leaders are change-orientated; form collaborations; build relationships; inspire others; foster mutual support; are good communicators and listeners; are considerate, supportive and participatory in their leadership; and have a high regard for teamwork (Day & Sammons, 2014; Ndiga et al., 2014). All of these are important for forming positive relationships with teachers, students and parents and achieving school improvement (Day & Sammons, 2014; Ertem, 2021; Hallinger & Heck, 2010; Lin, 2022; Sun & Leithwood, 2012; Yang, 2014).

Day and Sammons (2014) suggest that transformational leadership is less likely to result in student learning achievements as it mainly focuses on teacher relationships. However, other studies indicate that transformational leadership has positive effects on the principals` leadership (Marzano et al., 2005; Sun et al., 2017). Transformational leadership is known to be the "preferable environment for the leader and organization" (Adhikari, 2019, p.149) as characteristics such as mutual respect, empathy and trust are essential when implementing changes in schools (Sun et al., 2017).

To address the needs that principals in South Africa are facing, Citizen Leader Lab facilitates the Partners for Possibility (PfP) programme to provide transformational leadership development and support to school principals serving under-resourced communities in South Africa.

The Partners for Possibility Programme

The Partners for Possibility programme was initiated in 2010 to provide transformational leadership development and support to principals. Members of the business community are invited to partner with a principal over a 12-month period and are supported through the experience of applying new skills and knowledge in their individual schools.

Underpinning the PfP programme is Asset Based Community Development, (Kretzmann & McKnigh, 1993), which empowers community leaders - namely principals - to drive the work needed to transform schools. The PfP programme is an effective framework wherein the principal brings his/her deep knowledge of education and the specific challenges of the surrounding community, and experienced business leaders lend their skills, social capital and hands-on input to develop and support schools in tackling these challenges.

Partnerships (dyads consisting of a school principal and a business leader) are grouped into clusters of 8-10 schools to allow for peer and co-learning. Unlike many leadership development programmes, the PfP programme offers peer learning as opposed to mentoring,

which is normally a one-way learning process (Bush et al., 2011). The peer learning enables principals to learn from each other as well as from business partners in the cluster.

Each cluster is supported by an experienced Learning Process Facilitator (a trained and experienced coach), who facilitates regular meetings in which both partners share knowledge, experiences and good practice. Learning Process Facilitators (LPFs) support the growth of each individual and partnership through professional coaching. The LPFs help principals to unlock new possibilities and allow them to find their own solutions, rather than being told what to do. Studies of coaching and leadership development have shown that it can play a significant role as it echoes the adult learning process (O'Flaherty & Everson, 2005). Furthermore, coaching has been shown to be a significant element of continuing professional development for principals and teachers (Simkins et al., 2006).

The PfP programme design is based on the 70:20:10 model[1], where about 10% of learning comes from formal training in the form of three workshops with transformational leadership elements. Twenty percent of learning takes place through social learning – whereby participants gain new knowledge and insights through their engagement with other leaders from their cluster. Most of the learning that occurs (around 70%) is experiential learning, which happens as the participants work together to identify, prioritise and tackle challenges in their respective schools. It is well-known that people learn best from experiences. Gunter & Ribbins (2002) argue that leadership and leadership development is best when gaining professional experiences from a contextualised setting. Principals and their business partners implement projects that generate tangible and intangible benefits such as infrastructure and equipment upgrades, as well as staff development.

Objective and Methodology

The objective of this study was to understand and describe principals' perceptions of their leadership capacities and changes at their schools after being exposed to the year-long leadership development programme. A descriptive mixed-method study was conducted with 131 principals who had completed the year-long leadership development training between September 2020 and December 2021, exposing them to workshops, group coaching, peer learning and experiential learning.

Participants completed a post-programme questionnaire consisting of structured and unstructured questions focusing on their perceived leadership learning experiences, and the impact that the PfP programme had on them and their school community (teachers, learners, school leadership teams and parents). In-depth qualitative interviews were also conducted with the principals. The interviews consisted of unstructured questions, with additional questions arising depending on each participant's response. All the interviews were conducted online as a result of the COVID-19 pandemic. The interviews were audio-recorded and transcribed. Thematic content analysis was undertaken as described by Miles and Huberman (1994). The analysis was inductive and emerging themes were identified. A code list was generated using a data analysis software called Dedoose. The quantitative data gathered from surveys was aggregated and analysed using Excel.

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[1]The 70-20-10 model for learning and development describes the optimal sources of learning. It holds that individuals obtain 70% of their knowledge from job-related experiences, 20% from interactions with others, and 10% from formal educational events. See https://trainingindustry.com/wiki/content-development/the-702010-model-for-learning-and-development/.

Findings

Demographic details of principals

Of the 131 principals in the sample, there were 83 males (63%) and 48 females (37%). A total of 83 principals (63%) were between the ages of 50 – 59 years old. The youngest principal was 31 years old, and the oldest principal was 61 years old. The average age of the principals was 51.3 years and the median age was 52 years.

The PfP programme envisions getting parents involved in their children's education as early as the Foundation Phase, i.e. Grade R to Grade3[2]. Bearing this in mind, 102(78%) out of the 131 schools in the sample were primary schools, while 22 schools (17%) were secondary schools. The remaining seven schools were classified as either combined schools (n=2), special needs schools (n=2) or middle schools (n=3).

School principals' enhanced leadership skills

Significant improvements were shown in school principals' leadership capacities, particularly in the areas of:
- Personal confidence
- Improved culture within the school, leading to increased effectiveness of the senior management team (SMT) and motivated teachers
- Increased community involvement, enabling a stronger partnership between teachers and parents in support of learning
- Context-driven school improvement
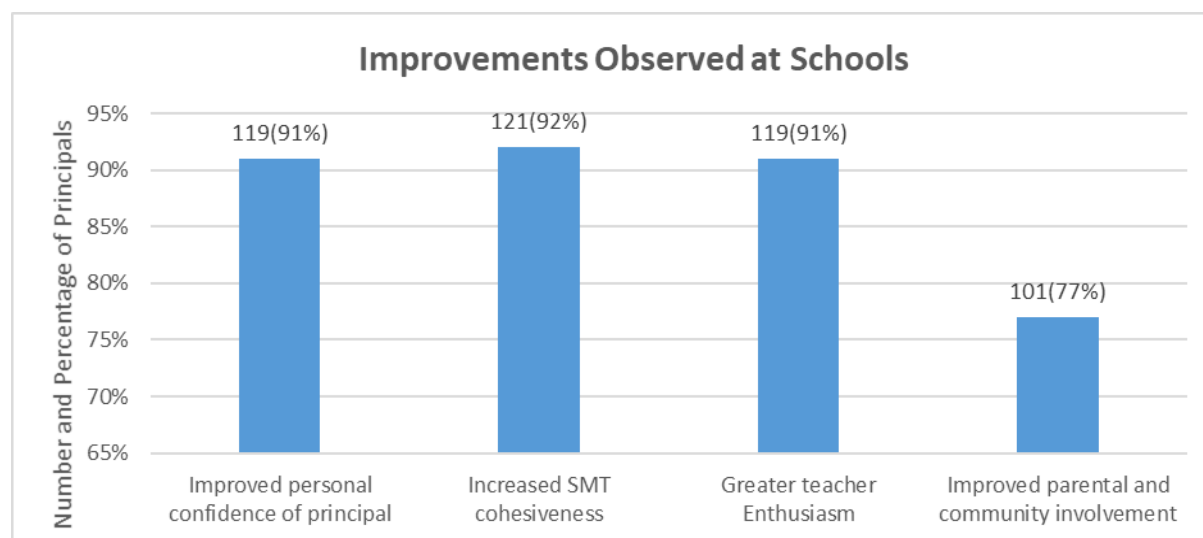
Figure 1: Improvements observed at schools

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[2] The Foundation Phase focuses on literacy, numeracy and life skills. Children in this phase are generally between the ages of 6 – 9 years old.
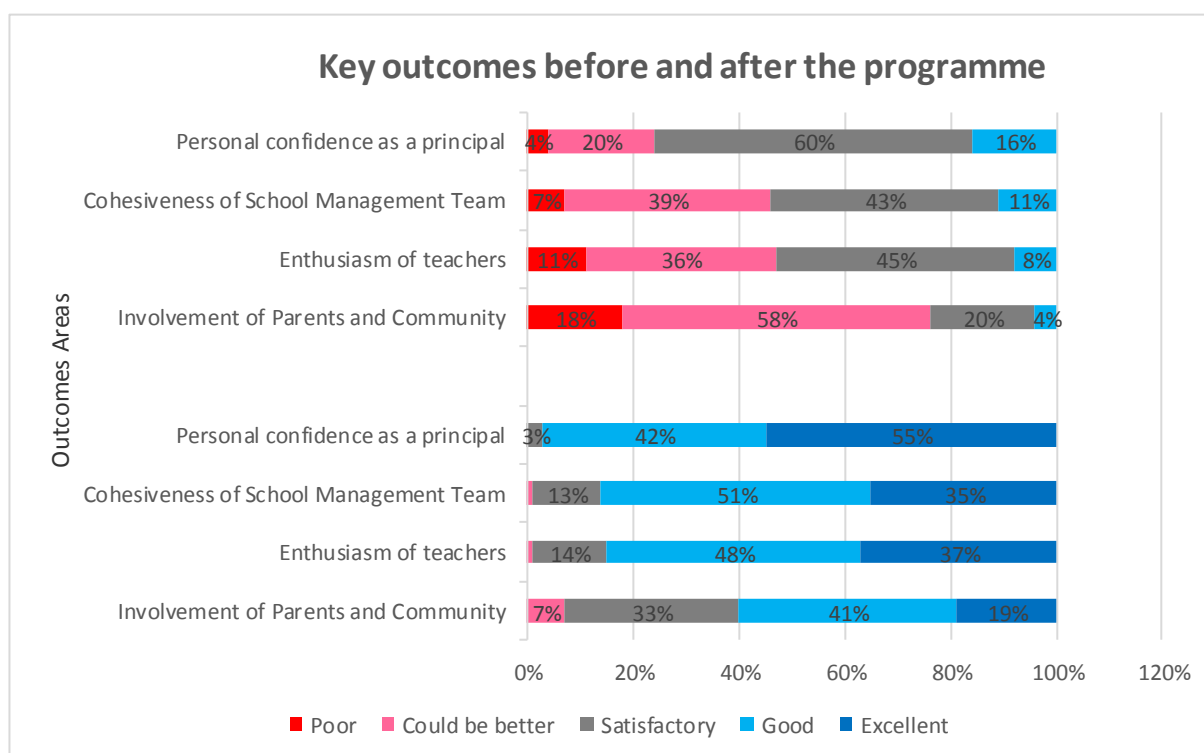
Figure 2: Key outcomes before and after the PfP programme

Enhanced Confidence of the School Principal

Ninety-one percent (91%) of principals indicated that their confidence had increased substantially after the 12-month programme (see Figure 1). Before joining the PfP programme, these principals had rated their confidence level as 'poor'. By the end of the programme, they felt more confident and rated it as 'excellent' (see Figure 2).

Principals' increased level of confidence since being part of the PfP programme is evidenced by their increased willingness to confront difficult situations, be assertive, resilient, and communicate their needs and desires while also being mindful of the needs of others. They listen more attentively without interrupting the speaker, and support and appreciate staff members. They are more open to possibilities and allow staff members to come up with their own solutions to problems by creating empathic, judgement-free thinking environments. A culture of collaborative decision-making has taken root in the schools of PfP principals. They cultivate an environment for success by increasingly delegating tasks, thereby promoting efficiency while fostering trust and ownership. They also focus on values that allow for a unified vision in their schools.

> Now my management style is [an] open, participative management style because of PfP. I can accommodate everybody, I can listen more, I can think more, I can support more and I can be more assertive. (Primary School Principal in Free State)

> Teamwork and appreciation are the two things that I am stuck with and that are beautiful things that I have learned through PfP. (Primary School Principal in Eastern Cape)

Improved Culture Within the School

Due to the principals' increased confidence and the implementation of leadership practices learned through PfP workshops and from their PfP partners, 92% of the principals noted that their SMT cohesiveness has changed from 'satisfactory' to 'good'. The SMTs are now more aligned and cohesive.

Ninety-one percent (91%) of principals indicated that there is a significant change in the morale and enthusiasm of teachers. They mentioned that before joining the programme, the teachers at their schools were not enthusiastic to teach – 45% felt the teachers' enthusiasm was satisfactory. However, this changed after they joined the PfP programme. Principals have also changed the way they lead and communicate with teachers. By the end of the programme, 48% rated their teachers' enthusiasm levels as 'good' and 37% rated it as 'excellent.'

The principals' continuous encouragement, trust and teamwork contributes to teachers feeling more valued, inspired, supported and understood. Principals reported having better working relationships with the teachers because of changes in their communication style and overall leadership practices. Teachers and SMTs have also become more cohesive. This in turn has led to harmony within the school and a renewed enthusiasm and commitment to teaching and learning among staff members.

> I have benefitted as a person and also as a manager of a school. The school is under capable leadership - one that consults, requests for help, has a network of other leaders… Teamwork forms the backbone of this leadership – 'we' instead of 'I'... Our meetings have always been [a] full house but after implementing my skills from PfP and interacting with all stakeholders there, our meetings overflow. The school governing body (SGB) is trained to check their audience needs and address them accordingly. (Primary School Principal in Mpumulanga)

> I am very proud of the kind of a person that I've developed [into], so the school has now been enjoying the new leader who has now been developed through PfP. Now I am a leader who is very patient. I've learned to be patient with people, I've learned to listen, I've learned to hear people and be compassionate with them. I've also learned to share the responsibilities and begin to trust and believe that people are capable of delivering. (Primary School Principal in Gauteng)

Principals reported that students also benefit from being taught by more enthusiastic, skilled and motivated teachers. The health, safety and wellbeing of learners is prioritised (for instance through projects like feeding schemes, health and wellness days, upgrading classrooms, building safer playgrounds, additional academic support, safety talks, better equipment for extramural activities, etc.). Additionally, learners get to play an active role in the betterment of the school by helping to clean the school yard, planting vegetable gardens and recycling, among other activities.

Increased Community Involvement in Schools

Principals mentioned using the tenets of PfP's Community Building training to invite, encourage and support parents to play a more active role in their children's education. More than half of the principals (77%) indicated that there had been an increase in parental and

community involvement at their school during the PfP year. At the end of the programme, 41% felt that parental and community involvement was 'good' and 19% felt that it was 'excellent.'

Notable positive changes at the school inspire community members to become more actively involved in the school. Examples of increased community engagement in the schools include:
- Higher levels of attendance at school meetings and more active participation during these meetings
- Support in maintaining the interior and exterior of the school
- Local businesses donating food for students during weekend and holiday classes
- Youth from the community volunteering to assist with tutoring and office management tasks

Context-driven School Improvement

The PfP programme is much more than a leadership development programme. It engages citizens and communities to partner with principals and teachers in the education of children and mobilises additional support around every school so that the school becomes both a well-functioning place of learning and the centre of its community.

The partnership projects implemented to address school needs, together with access to expanded networks, generate tangible and intangible new or improved resources for schools. The study found that principals become more confident to engage with the school community and other stakeholders. Consequently, they are better networked and can mobilise important new resources for their schools with the support of their business partners, other principals in the cluster and community members. Table 1 below provides examples of the school initiatives enabled by increased networking.

Tangible and intangible initiatives	Examples
Donations	School uniforms, shoes, toiletries, books, electronics, groceries.
Renovations and construction	Building and renovating classrooms, offices, libraries, school kitchens, science labs and staff rooms.
Nutrition	Vegetable gardens, food parcels and feeding schemes.
Motivational talks, training and teambuilding sessions	Motivational talks for learners and staff members, teambuilding retreats and skills development training for staff members.
Academic support	Tutoring and after-school academic programmes
Water and sanitation	Building new toilets and boreholes, providing jo-jo tanks, educational talks about sanitation and responsible water usage.
Job creation and volunteering	Creating employment opportunities and internship programmes at the school for unemployed parents and youth, parents volunteering to maintain the school premises, and partnering with small business owners/entrepreneurs to supply services to the school.
Awareness campaigns and events	Hosting awareness campaigns about health, safety, substance abuse, recycling, etc.

ICT resources and training	Upgrading computer labs, computer training, setting up free internet connection and providing e-learning materials.
Sports facilities and programmes	Upgrading sport facilities, supplying sport uniforms, introducing new extramural activities at the school, sponsoring sport events

Table 1: Partnership initiatives at schools

Discussion

The findings of this study support the notion that investing in principals is a catalytic endeavor as one principal impacts an entire community of teachers, learners and parents (Ertem, 2021; Hauseman et al., 2017).

The PfP programme builds leadership capacity in school principals through experiential and peer learning. According to Constructivist theories, learning occurs through active engagement and collaboration when solving meaningful problems. Furthermore, Paulo Freire (Freire, 2000) posits that learning is situated within one`s lived experience. Researchers have also found that leadership requires a 'hands-on' approach (Fullan, 2009). Based on the study results, it is clear that the active engagement and hands-on peer learning approach of the PfP programme, coupled with the principals` deep knowledge of education, has enabled them to learn and use what they have learned to improve their school environment.

The workshop training Time to Think by Nancy Kline, focusing on communication skills, appreciation and encouragement, gave principals the skills to manage, support and engage with teachers and parents more effectively. Coaching has been found to unlock a person's potential to maximize their own performance and focus on future possibilities (Cox, 2006; Whitmore, 2017). Being supported by a professional coach, i.e. the Learning Process Facilitator, and using the skills from the Time to Think workshop helped principals think differently about problems they were facing and find solutions for these problems. This is consistent with findings from other studies that showed the benefits of coaching on principals and school leadership (Bloom et al., 2005; Huggins et al., 2020; Ray, 2017).

Covey (2013) suggested that a change in thinking is likely to lead to a change in results. The PfP principals started to think positively and viewed themselves as change agents. This led to them inspiring their teams (SMTs and teachers) to become more cohesive and motivated to teach, thus improving the school environment. This is also consistent with other literature that showed that transformational leadership styles are related to teacher motivation (Adhikari, 2019; Ertem, 2021; Wulandari, 2022).

Community involvement is central to the success of the school. However, gaining community involvement is a 'two-way street', which means that principals and teachers should invest time in developing and maintaining good relationships with students, parents and the larger community (Prew, 2009). It is evident that principals in the PfP programme used the skills that they gained in workshops - particularly the Time to Think and Community Building workshops - to build positive relationships and engage with parents.

Scholars have argued that the socioeconomic status of communities is important as parental involvement is generally higher in affluent communities than in lower socioeconomic communities (Baquedano-López & Alexander, 2013; Jeter et al., 2007). Many parents and

communities from low socioeconomic groups face barriers such as limited financial resources, lower educational attainment, less time to volunteer and attend parent meetings, and a lack of transportation to be involved in their child`s school activities and education (Malone, 2017). Nonetheless, studies by Hamlin & Li (2020) and Maluleke (2014) as well as the findings from this study have shown that despite being from a low socioeconomic class, many parents and communities are involved in local schools. Similar to, other studies Maluleke (2014), Eccles, & Harold (1996), Hamin &Li (2020) and Epstein (2002), parents in our study volunteered at schools by painting classrooms, cutting grass, guarding the school against burglars and assisting teachers during the COVID-19 pandemic. Increasingly, parents also showed an interest in their child`s education by attending parent-teacher meetings.

Romanowski (2022) has shown that the PfP programme provides opportunities for developing three types of social capital: structural, cognitive and relational. Through the PfP partnership model implemented in schools, new networks as well as tangible and intangible resources are mobilised around every participating school. All these resources add educational and social value to the schools. For instance, where vegetable gardens are established, students receive additional nourishment; where libraries, science and computer labs are created, students have spaces in which to develop critical thinking and other skills required in today's rapidly evolving labour market.

Limitations

The biggest limitation of this study is that only principals were surveyed and interviewed. The results are thus based on principals` self-reporting of their leadership capacities and the changes at the schools. Future studies must include interviews with teachers, parents and community members to provide valuable insights about changes at the schools and the effects of the PfP programme on school leadership practices. Nevertheless, this study offers valuable insight into PfP's contribution to principals` leadership development and how this affects the school community as a whole.

Conclusion

The findings of this study point to rich principal experiences which are of immense value to future leadership development programmes aimed at principals. The PfP programme contributes positively to the leadership development of South African school principals. It indeed assists to fill the gap in the absence of a formal compulsory leadership development programme for school principals. This is evident in the skills that principals acquire from the PfP programme. These skills are precisely the knowledge and skills that the South African Department of Basic Education wants principals to have in order to develop and empower themselves and others (Policy of the South African Standard for Principalship, 2015).

Drawing on the leadership capacities, networks and resources of the business sector, the PfP programme leverages the power of partnership to effect positive change at schools in under-resourced communities. The programme also supports principals in providing quality teaching and learning. This is evident in principals' strengthened leadership capacities to make positive changes at the schools, ensuring that students are supported by their parents and communities, as well as making sure that the schools are safe and have adequate resources and facilities. The programme connects resourced individuals with less resourced communities, thus making sure that there is an improved distribution of opportunities, knowledge, experience and assets in under-resourced schools and communities.

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The Experience of Empathy With the LGBTQ+ Community Through Narrative Transportation When Not LGBTQ+: A Qualitative Investigation

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Abstract

In this study, non-LGBTQ+ college students described their experiences of reading a novel with LGBTQ+ characters from the formers' perspectives. The target population for this study was cisgender, heterosexual, traditionally-aged college students, defined as 18-35 years of age. Eight participants fully participated in the discussion and were interviewed for the study. The participants were located globally, in a variety of countries. The research methodology was generic qualitative inquiry and data was collected through semi-structured interviews. Upon grouping the interview responses, seven themes emerged. These themes can be summarized as follows: Participants identified reading the LGBTQ+ text as an overall positive experience, which allowed them to gain a fuller understanding of the LGBTQ+ perspectives. They described enjoying using an online discussion platform and shared a strong connection to characters because of the participants' similar experiences and feelings. All of the participants wanted to read more LGBTQ+ novels in the future. The results of this study revealed that all of the study's participants experienced empathy while reading and experienced a different perspective from reading an LGBTQ+-centered text.

Keywords: Empathy, LGBTQ+ literature, LGBTQ+, Narrative Transportation

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Introduction

Despite progress towards equality in many spheres, the LGBTQ+ community often faces discrimination and violence in Northern America (Nadal, 2019). Discrimination towards the LGBTQ+ community takes place in, but is not limited to, the workplace (Guo, 2015; Holman et al., 2019; Nadal, 2019; Teeman, 2019), education (Parks, 2014; Woodford et al., 2018), personal areas such as bathroom usage (Markell & Weingarten, 2016; Nadal, 2019) and in health care (Casey et al., 2019). LGBTQ+ members are more likely to commit suicide versus their non-LGBTQ+ peers (Aranmolate et al., 2017; Day et al., 2020), and many LGBTQ+ members have reported that bullying and violence toward them is not uncommon (Aranmolate et al., 2017; Frank & Baker, 2019), especially members of the LGBTQ+ community who are also persons of color (Casey et al., 2019; Day et al., 2020). Role models and non-LGBTQ+ allies are extremely important when it comes to the safety of members of the LGBTQ+ community (Day et al., 2020; Dhupa, 2016). This safety becomes an increasing concern during the current COVID-19 pandemic, where online teaching is prevalent and students may be in an unsupportive home (Fish et al., 2020).

It is increasingly important for teachers to not avoid mentioning LGBTQ+ individuals in a positive way, and to not exclude this community in any way, starting in early child education, because by avoiding acknowledging this community, it isolates students who either have parents who are LGBTQ+ or who themselves are LGBTQ+ (Day et al., 2020; Dentato et al., 2016). In the current political climate, positive LGBTQ+ representation is increasingly important (Suarez et al, 2021). Despite this, teachers often neglect LGBTQ+ themes in their classroom (Batchelor et al., 2018) and face pushback from the community or schools when teaching LGBTQ+ literature (Page, 2017). This results in teachers feeling reluctant to teach inclusive literature (Hermann-Wilmarth & Ryan, 2015; Page, 2017) despite finding this literature to be valuable (Page, 2017; Suarez et al., 2021).

Being able to see more representation of LGBTQ+ members in more spaces combats homophobia (Bryan, 2017; Suarez et al., 2021). Despite an obvious need for empathy and inclusiveness for the LGBTQ+ community, and with several studies showing that schools with inclusive curricula have students with a greater sense of connectedness to their school community and other students (Booker, & Campbell-Whatley, 2018; Day et al., 2020), only a small percentage of students were taught positive representations about LGBTQ+ people, history, or events in their schools (Parks, 2014) even though there is importance in learning about LGBTQ+ history (Graves & Dubrow, 2019).

The English Language Arts (ELA) curriculum is an area where positive representations for LGBTQ+ people can be easily incorporated (Hermann-Willmarth et al., 2015; Schieble & Polleck, 2017). Traditionally, the literary canon involves classic literature and authors, which tends to lack diversity, and many attempts to incorporate diverse authors are seen as adding unnecessary fluff to a curriculum (Jones, 2019; Schieble & Polleck, 2017). Research shows that literature is often used to explore empathy (Newstreet et al., 2019), as it is reflected when the observer registers what others can see, feel and observe (Breithaupt, 2011; Thexton et al., 2019). This is related to narrative transportation specifically identifying empathy as the act of imagining and getting "caught up" in a narrative (Gerrig, 1993). Narrative transportation has been studied to see how it can be applied to media consumption and marketing (Anaza et al., 2020), but I suggest that it may have applications in the classroom, in the context of being

engaged in empathy through literature instead of being engaged in empathy solely in the context of reacting to others or one's surroundings.

This study explored empathy through the lens of narrative transportation theory and the use of online discussion to facilitate connections to characters and an understanding of plot. In this present study, non- LGBTQ+ college students described their experiences of reading a novel with LGBTQ+ characters from the former's perspectives, as opposed to current limited research involving same-sex attraction, empathy, and narrative transportation, which quantitatively looked at using empathy and narrative transportation to persuade (Mazzocco et al., 2010; Vafeiadis et al., 2020).

Narrative transportation, a subset of theory of mind, was coined by Gerrig (1993) and explained by Van Laer et al., (2014). It uses the metaphor of travel to conceptualize the state of detachment from the world of origin into the world which the characters experience, because of the reader's engrossment in the text (Van Laer et al., 2014). For narrative transportation to take place, readers process the stories in terms of receiving and interpreting; they must try to understand the experience of the character through empathy and generate vivid images of the story plot, as if they are feeling and experiencing the events themselves (Gerrig, 1993).

Methodology

The present study uses generic qualitative inquiry (Percy et al., 2015). This methodology is selected when other methodologies do not suffice and looks at the subjective experience and external happenings and events of the participants. Additionally, generic qualitative data seeks information from representative samples of people about real-world events and processes, or about their experiences. It includes the use of rich data to determine themes, and looks at a broad range of opinions, ideas, or reflections. This present study investigates a real-world process to look at a broad range of reflections.

Research Design

This present generic qualitative study used semi-structured interviews to collect data from eight participants after an online discussion, which is aligned with generic qualitative inquiry (Percy et al., 2015). Prior to the discussion group, the participants each read the novel *Two Boys Kissing*, by David Levithan (2015). They then participated in an asynchronous discussion via a private Facebook group led completely autonomously by my research assistant. The data used for this study was only the interviews that took place after the discussion group. Each participant participated in a 20-30 minute recorded audio interview via Skype with me. The interviews were transcribed using an automated transcribing application, and the data analysis was conducted using a combination of inductive and thematic analysis.

Target Population and Sample

The target population for this study was cisgender, heterosexual, traditionally-aged college students. Traditionally-aged is defined as 18-35 years of age. The exclusion criteria were members of the LGBTQ+ community and learners on the autism spectrum. The research question specifically looks at how non-LGBTQ+ members experience empathy when reading

LGBTQ+ texts, so exclusion criteria had to include any member of the LGBTQ+ community. Additionally, there is some theory of mind research that shows that autistic individuals experience mental processes differently than neurotypical individuals (Andreou & Skrimpa, 2020; Harmsen, 2019; Livingston et al, 2019); therefore, individuals with autism were also excluded from the present study.

Participant Selection

Participants were recruited by me and the research assistant and through approved private Facebook groups and public Facebook groups. There was also a snowball recruitment method, as participants were encouraged to share the information about the study with others. Facebook was chosen to recruit since the discussion group was held in a private Facebook group. The Facebook groups were all related to reading and book clubs. Potential participants contacted me through email. I then asked screening questions to determine eligibility. After eligibility was determined, potential participants were given an informed consent form. Upon receipt of this form, participants were given a PDF of the novel and instructions about how to join the private Facebook group for the discussion.

Data Collection

A private Facebook group was created for the study, and the rules and expectations were pinned to the announcements section. The discussion group was exclusively run by the research assistant. I was an observer and only engaged as far as to "like" posts to encourage participation. The research assistant posed questions every few days and asked participants to respond to at least two peers. No data was collected during this phase. Data was collected during the Skype interviews. The interviews were recorded and digitally transcribed. Interviews were semi-structured.

Participant Demographics

The participants were asked to provide the information below. They were informed that they could leave blank any information they did not want to disclose. Any information that participants wanted to leave blank was labeled as DNA. All answers were in short answer format to reflect the participant's identity in the way that they felt to be most accurate. The answers in the table are exactly as written by each participant. The information is presented as follows:

Table 1: *Participant Demographic Information*

Participant	Race	Gender	Age	Religion	Years in University/College
1	Mixed	Female	27	Judaism	3
2	Brown	Female	23	Islam	3
3	Japanese	Female	30	Not Religious	7.5 years
4	Black	Female	24	Christian	4
5	Asian	Male	32	Muslim	3
6	White	Female	20	Christian	3
7	Mixed	Female	29	DNA	3
8	White	Female	21	Christian	4

Research Methodology Applied to the Data Analysis

I used semi-structured interviews to code for themes and conduct the analysis. All participants were de-identified using an alphanumeric code to protect their anonymity. The analysis of the interview responses was an ongoing process, which required that I glean information from the rich data provided through the interviews, as described below (Creswell, 1998). Then I looked for recurring words and themes, and subsequently used this information to arrive at a conclusion about commonalities among the participants.

Presentation of Data and Results of the Analysis

Upon grouping the interview responses, seven themes, with numerous sub-themes, emerged. These themes were created from an inductive viewpoint, based on the participants' responses and not by any predetermined categories. These seven themes were: 1) A Positive Overall Experience; 2) Enjoyed Using Facebook Groups; 3) Related to Situations and Characters; 4) Experienced Immersion in the Book; 5) Insightful Experience Reading LGBTQ+ Text; 6) Fuller Perspectives Towards the LGBTQ+ Community and Their Struggles; 7) Desire to Read LGBTQ+ texts in the future.

Positive Overall Experience

The first theme that emerged was regarding a positive overall experience. The participants reported that they enjoyed the experience and enjoyed learning about a new perspective. For example, Participant 7 stated: "I really enjoyed the book. I cried many, many times throughout." One participant (Participant 7) recommended that her teenagers read the text, saying: "I have two sons, one's 13 and one is 10 and I want them to read this book eventually." The participants enjoyed reading something they would not normally read: "I really enjoyed the novel. I think it was really awesome to read a book that wasn't necessarily something that I would have picked right away" (Participant 6) and "I really enjoyed it. I enjoyed learning about the experience of others" (Participant 7).

Enjoyed Experience Using Facebook Groups

The second theme that emerged was related to the participants' enjoying the experience using Facebook groups. None of the participants had ever used Facebook for academic discussions, and although they wanted more interaction from their peers and the research assistant, they found the discussion helpful in understanding the characters and the plot.

Related to Situations and Characters

The third theme that emerged came from relating to situations and characters within the novel. Although the participants were not LGBTQ+, they still related to the experiences and feelings of the character: "I guess I was surprised that I did connect with a lot of the characters" (Participant 8). Participant 8 continued: "There's a lot of connection between somebody who is LGBTQ and someone who isn't because I was able to relate to the character more than what I thought." Some participants worried about the characters and had to take breaks because the experience upset them or reminded them of their own experiences, as Participant 1 shared:

> There was one [moment] where I kind of actually had to stop for a moment, and it was a trip down memory lane. . . it was similar to how my relationship was with my husband, when [it was] beginning, and. . . I had to stop because it was just like, that was big for me.

The participants were able to feel strong emotions with the characters because they could relate to how they themselves would feel, and they felt empathy towards the characters and their situation. The participants looked forward to a resolution with the characters, they made broader connections outside of just the LGBTQ+ experience, and they realized that they have more in common with LGBTQ+ individuals than they had thought they had.

Experienced Immersion in the Book

The fourth theme that emerged was regarding experiencing an immersion in the book. Many participants felt that the book was realistic: "It was quite realistic to me. And then what they've gone [through]. . . and the struggles they've gone through were all real. . . it actually happens" (Participant 2), and they found themselves invested in the story and characters, although it did take time for this to happen.

Participant 8 described her immersion in the book:

> At the end, I was racing to the finish line to finish the story. . . At the very end. . . I didn't even realize I was reading until I was done. . . all the stories are jumping so fast and little things. . . were happening. . . I didn't realize I was crying.

Insightful Experience Reading LGBTQ+ Texts

The fifth theme that emerged was related to an insightful experience reading an LGBTQ+ text. Only one participant had read an LGBTQ+ text before, although all of the participants enjoyed the text that they read for this study and expressed interest in reading more LGBTQ+ texts and recommending these texts to others: "It is beneficial for others to read these types of

novels. I think that the reason we don't talk about two boys kissing is because we don't know how they feel" (Participant 8).

Many participants found that reading an LGBTQ+ text was not only not controversial but showed that there are many things that are "normal" about LGBTQ+ characters.

Participant 8 conveyed this as follows:

> At first I thought it was going to be difficult [to read this text]. A lot of my family members were like, "I can't believe you are reading that." Then once I started reading it.
>
> . . . . honestly, it is just like any other book, you know, with a girl and a boy being the main character[s]. . . so I [don't] see a big issue with it. While it was LGBTQ+. . . it was just another, like another book that I had in my hand.

Some of the participants felt that it was no different than cisgender/heterosexual texts, and all the participants felt that they gained perspective, even if they did not fully understand the experience of LGBTQ+ people. The participants found that reading this book was beneficial for them.

Fuller Perspectives Towards the LGBTQ+ Community and Their Struggles

The sixth theme that emerged related to the perspectives towards the LGBTQ+ community and their struggles. Many participants did not realize the struggles that LGBTQ+ people experience: "It takes courage for homosexuals to say they are homosexual, so I appreciate that fact" (Participant 2), or the history of LGBTQ+ people.

Participant 8 described her lack of knowledge regarding LGBTQ+ history:

> I had to stop for a second and just think, "I cannot believe that that happened." Because I'm not familiar with the background of what [LGBTQ+ people] struggled through during that time, so like, when I read that. . . . I had to step back for a second. . . . I couldn't believe it.

Some participants did not know any LGBTQ+ people in real life because of the social pressure surrounding same-sex attraction: "We are seeing [LGBTQ+] people actually [trying to be a] part of our Zimbabwean context but people are failing to react and to recognize LGBTQ+ [people] so they are hiding in their own world" (Participant 4).

Desire to Read LGBTQ+ Texts in the Future

The seventh theme that emerged was a desire to read LGBTQ+ texts in the future, as all of the participants expressed a willingness to read LGBTQ+ texts in the future.

Participant 2 noted her feelings about reading LGBTQ+ texts:

> We should read more [LGBTQ+ texts] to get more knowledge and insight about them. And to understand them and to understand their views and points. I don't think I will avoid the genre. I would love to read more books in this genre.

The participants found that the text was helpful and that learning new perspectives was helpful. Participant 4 said that reading this text would help support empathy towards others: "I believe that we, as people. . . should actually start understanding [and] start to empathize, and to read to understand [other] people within our society."

Another participant (Participant 6) said:

> I think a lot of people don't understand the LGBTQ+ community. My whole thought is whenever there's anger or aggression in life, it's usually out of ignorance or misunderstanding. I think seeing people who don't understand [and seeing] people who are ignorant and just spew hateful things is something that we're facing today in many cases, whether it's about the LGBTQ+ community, or about race, because people will always find something to be angry about. But I think taking a chance to educate those people on what this is actually like is really important.

Conclusion

Confirmation of Current Research on Empathy

Dore et al. (2018) stated that empathy includes recognizing that an individual's mental state can differ from one's own and that those experiencing empathy can anticipate others' perspectives. This was confirmed in the current study. During the interviews, many participants reported that reading *Two Boys Kissing* allowed them to experience a "different" perspective and view. They overwhelmingly made connections with the characters and shared similar perspectives and feelings in their own lives, but they also anticipated how the characters would feel and react and had their own feelings about this.

Confirmation of Narrative Transportation in Current Study

Thompson et al. (2018) claimed that different types of stories may impact the degree of transportation. Although it can be seen from the data of the current study that all the participants experienced transportation within the text, they did experience different degrees of transportation. For example, Participant 5 only felt that he was swept up into the novel half of the time, stating: "What did bring me into the history into those words, it's just like a 50/50. For me, it just depends on where you're reading." When I asked Participant 8 if she felt "swept up" in the reading, she said that she did not, but then later in the interview she said: "At the end, I was racing to the finish line to finish the story. So, at the very end, I was like I didn't even realize I was reading until I was done." This suggests that there was a level of transportation which took place for her. One of the factors that appeared to impact the participants' level of transportation was the structure of the text.

Need for LGBTQ+ Literature and Discussion

Short (2012) asserted that the importance of stories is often overlooked: "These stories create our views of the world and the lens through which we construct meaning about ourselves and others. We also tell stories to make connections, form relationships and create a community with others" (p. 9). Chimamanda Ngozi Adichie (2009) explained the dangers of only being exposed to one perspective in her Ted Talk entitled *The Danger of a Single Story*, as she said: "Many stories matter. Stories have been used to dispossess and to malign, but stories can also be used to empower and to humanize. Stories can break the dignity of a people, but stories

can also repair that broken dignity" (17:13). Dodge and Crutcher (2015) wrote: "Schools often perpetuate harmful single stories through class texts. Teachers are in a unique position to disrupt the single story through texts they teach" (p. 95).

Research clearly shows that reading LGBTQ+-centered literature benefits LGBTQ+ students. However, although research, books, training, and internet posting about the need for LGBTQ+ inclusive programming in secondary schools has been discussed (Parks, 2014) teachers actually feel pressured to maintain heteronormativity in the classroom (Allen, 2018; Holman et al., 2019). Hermann-Wilmarth and Ryan (2019) suggested that this may be perhaps due to fear of parents and suggest that fear of parents is not enough to not teach LGBTQ+ texts. Since adolescents must complete compulsory English/Language Arts courses, it is possible that incorporating LGBTQ+-centered texts could be accomplished with success (Vetter et al., 2021).

Confirmation of a Need For LGBTQ+ Texts and Discussion

Short (2012) said: "We also tell stories to make connections, form relationships and create a community with others" (p. 9). This was seen in the present study both through the text itself, and the use of the Facebook discussion group. Participant 7 shared that she goes out of her way to read texts that hold different perspectives than her own so that she can make connections with others who are unlike herself: "I just want to learn about other outlooks and stuff." Participant 6 said that she enjoyed the experience specifically because of those connections and perspectives; she shared and learned from others both in the text and within the discussion group: "I think this has just been a really great opportunity to hear other people's perspectives and get to learn a little bit more about them."

Lastly, in addition to choosing a different methodology, it would be beneficial for participants to be asked to journal, and for the researcher to collect data during the discussion itself. This present study only collected data from the semi-structured interviews, after the discussions took place. Adding journaling from the participants and observation data from the researcher during the discussion, in addition to the semi-structured interviews, would yield richer data. Participant 8 assumed that other group members would share the same perspective as her parents but this ended up not being the case, as she felt that all of the participants were respectful and supportive of the book's content:

> I was expecting more people to be more people to not support. Like, you know, the idea of two boys kissing and kind of be, like, disgusted by the book. I guess I was surprised that a lot of the people have the same thoughts as me and kind of all. Like we all kind of did with everyone in the story.

This participant was also the youngest participant in the study group and the only participant who shared any response or opinions about her family's views on the subject matter. The present researcher wonders if Participant 8's family's reactions would have been more influential on the participant if she were a secondary school student and not a college student. This leads the current researcher to conclude that school districts and teachers should be more forthcoming with the positive research regarding using LGBTQ+ texts in the classroom, if they want to continue to diversify school texts and support students of different minority groups. Furthermore, I gained the understanding that although Participant 8 was the youngest

participant in the study, she was still independent enough to be aware of her own experience with the text and determine how the LGBTQ+ topic and characters felt for her.

Despite her family's objections, Participant 8 voiced her own willingness to read LGBTQ+ texts in the future:

> Honestly, it's just like any other book, you know, with a girl and a boy being the main character, anything that happened in it, you know, it could have been a grown boy in there. So, I didn't see a big issue with it.

> Participant 5 shared similar feelings about reading LGBTQ+ books:
> For me, the LGBT community is just as normal, as everyone knows, for me, especially doesn't have to be special. You know why? Because it's just like, it always sucks, or we live a normal life, we always falter, I also struggle.

As described above, only a small percentage of students were taught positive representations about LGBTQ+ people, history, or events in their schools (Parks, 2014). In regard to this, Participant 8 shared her lack of awareness about LGBTQ+ history:

> I didn't stop reading completely, but I had to stop for a second. I cannot believe that that happened. Because I'm not familiar with the background of what they struggled through during that time. So, like, when I read that it kind of like, just like, I had to step back for a second, like, like, I couldn't believe it.

Assumptions

Based on previous research by Gerrig (1993), it was assumed that the participants would experience narrative transportation, during which they would put themselves into the role of the LGBTQ+ characters. It was assumed that this may challenge some of their previously held beliefs (Mazzocco et al., 2010; Vafeiadis et al., 2020) and that they may feel more compassion or understanding towards the LGBTQ+ community (Parks, 2014). These assumptions were demonstrated to be partially correct, but also partially incorrect. Although all the participants expressed empathy with the characters and felt "swept up" in the story, through engagement or empathy with the characters, none of the participants claimed that this text challenged any of their previously held beliefs. In fact, all the participants reported that this text either reinforced their previously held beliefs towards the LGBTQ+ community, or further added positively to their beliefs. Two participants specifically mentioned that they previously had not thought about LGBTQ+ members in depth at all, and therefore this text did not challenge their beliefs, but perhaps challenged their social practices.

Limitations

One limitation of this study was the delimitation that it focused on participants who are currently enrolled in a college or university. It would have been interesting to see if participants who were younger or were less educated (i.e., current high school students) would have challenged the text more or would have been as open to sharing in the Facebook discussion group. Additionally, there was the limitation that the eight participants consisted of seven women and one man. It would have been more balanced, and therefore more effective, if there had been more men involved. Another delimitation was that the study only included people who did not self-identify as being on the autism spectrum. The autism

exclusion was because studies show that those with autism may not experience theory of mind like those who are not on the autism spectrum (Andreou & Skrimpa, 2020; Harmsen, 2019; Livingston et al, 2019). However, this definitely narrowed the eligibility for the study, and during recruitment, I did receive angry and offended emails from those who felt that including this exclusion criteria, and the delimitation of excluding LGBTQ+ individuals, was unethical or unfair.

In addition, it could be argued that only individuals who were open to reading an LGBTQ+ would have volunteered for the study, which would impact the results of the study to make it more positive towards LGBTQ+ issues and characters. Those who did not already have a positive view of LGBTQ+ issues and characters may not have wanted to participate in the study itself because it could have been offensive or off-putting to them. As a result, the results may also be skewed towards a more favorable light regarding LGBTQ+ texts.

The methodology itself also had limitations. Generic qualitative inquiry allows for a relatively shallow understanding of a phenomenon, and unlike quantitative studies, does not allow for generalization (Creswell, 1998). Although this study fills the gap in the research, as indicated above, this topic needs to be further investigated using other research methods, such as case study (Gerring, 2006), to gain a deeper understanding of the experience of empathy during narrative transportation while reading a text with characters who are different from the reader.

Recommendations for Further Research

Based on the data of the current study, it is my recommendation that further research be done in several areas corresponding to this study. First, it would be beneficial for this study to be replicated using a different LGBTQ+ text. Since the narrativity of this text was lower due to the use of "ghosts" or "The Us," it negatively impacted the narrative transportation of the participants. Although all the participants experienced transportation and feelings of empathy, it would be beneficial to have another qualitative study done on this subject using a fictional LGBTQ+ text with higher narrativity. Also, the study happened to be made up of 7 women and 1 male. It is recommended that in the future, studies include a balanced ratio of male and female individuals, as well as non-binary individuals. Additionally, it would be interesting to see how other online social platforms worked regarding the online discussion. It would further add to the research to have data using other social networking platforms besides Facebook to see if there is any difference in using these different social networking platforms, as well as studies replicating this current study using more conventional online discussion platforms.

Based on the delimitations in the study, as described above, I also suggest that further research be done with more mixed audiences (LGBTQ+ and non-LGBTQ+) to see if there are different experiences in empathy and discussion content between these different audiences. Perhaps by opening up the inclusion criteria, more data could be collected regarding the experience of empathy while reading LGBTQ+ texts, and the information collected from LGBTQ+ students and non-LGBTQ+ students would allow for richer data for further investigation about empathy and narrative transportation. Additionally, I used college-aged students to simplify the recruitment process and to avoid at-risk populations. Further research could be done using secondary school students to gather more information regarding their experiences of empathy, focused on both LGBTQ+ and non-LGBTQ+ students. It would be interesting to see if, like Participant 8, family members would share opinions about

LGBTQ+ issues and individuals, and if that comes up in any capacity in the experience of empathy while reading the novel. This may also provide more data on the use of social networking platforms for use as discussion tools because accessibility and the protection of identity may be another factor for younger students.

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Taiwan and EU Strategies Against Climate Change – Main Topics for International Education

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Abstract
The 6th report of the Intergovernmental Panel on Climate Change (IPCC) presents detailed knowledge about climate change and calls for more immediate actions to reduce risk and increase resilience. We provide an overview of the climate adaptation and mitigation strategy of Taiwan and the European Union (EU) including the general framework, individual programs, their achievements and concerns. In Taiwan, the government introduced the National Climate Change Adaptation Policy Guidelines and the Taiwan Climate Change Projection Information and Adaptation Knowledge Platform (TCCIP) to implement and research adaptation solutions. Climate action is at the heart of the European Green Deal which is an ambitious package of measures to drastically reduce greenhouse gas emissions, investing massively in research and innovation. Starting with the new Commission in 2019, the EU developed a massive wave of new initiatives for climate actions. One of these actions is the European Climate Law with a legally binding target of net zero greenhouse gas emissions by 2050. In the discussion, we also examine the challenges of public visibility and media attention on climate issues. As numerous scientific findings were presented to the world community, now all eyes are directed to COP 27 held in Egypt. As the pandemic absorbed much of the workforces of governments in Europe as well as in Asia, we ask: How are Taiwan and the EU dealing with this?

Keywords: Climate Change, Climate Change Adaptation, European Union, IPCC, Taiwan

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Introduction

After the approval by all 195 members of the Intergovernmental Panel on Climate Change (IPCC), a Working Group II report about the impact of climate change was published in February 2022 (Pörtner et al., 2022b). 'This report is a dire warning about the consequences of inaction,' said Hoesung Lee, Chair of the IPCC (IPCC, 2022). 'It shows that climate change is a grave and mounting threat to our wellbeing and the planet. Our actions today will shape how people adapt and how nature responds to increasing climate risks (IPCC, 2022).' In this article, we focus on the contents of the WG II report and aspects related to Taiwan and the European Union (EU). Building on the findings, we also provide an overview of Taiwan's and the EU's strategies against climate change and evaluate their achievements and challenges.

Intergovernmental Panel on Climate Change (IPCC)

[Logo of the IPCC]. (n.d.).
https://en.wikipedia.org/wiki/Intergovernmental_Panel_on_Climate_Change#/media/File:Intergovernmental_Panel_on_Climate_Change_Logo.svghttps://tccip.ncdr.nat.gov.tw/km_newsletter_one.aspx?nid=20200807141614
Figure 1: Logo of IPCC

In 1988 the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) established the Intergovernmental Panel on Climate Change (IPCC). It is a UN body that assesses scientific knowledge related to climate change and regularly informs politics about its scientific assessments of implications, risks and strategies for adaptation and mitigation. To fulfill its tasks IPCC is supported by three Working Groups: WG I clarifies the physical science basis of climate change, WG II is concerned with impacts, adaptation and vulnerability and WG III with the mitigation of climate change. A Task Force on National Greenhouse Gas Inventories develops methodologies for monitoring emissions. Governments use the IPCC assessments to develop climate policies and these assessments are of great importance for international negotiations to combat climate change. To reach most high standards of objectivity and transparency reports are drafted and reviewed in several stages, which takes years of scientific considerations. The final IPCC assessment report consists of the contributions of the three Working Groups and a Synthesis Report.

Working Group II contribution to the Sixth Assessment Report

It is the task of WG II of the IPCC to assess the impacts of climate change. It looks at ecosystems, biodiversity, and human communities at global and regional levels. It reviews the vulnerabilities, capacities and limits of the natural world and assess how human societies adapt to climate change. The Summary for Policymakers of the IPCC WG II Report, Climate Change 2022: Impacts, Adaptation and Vulnerability was released on 28th of February 2022 after approval by all 195 member governments of the IPCC (Pörtner et al., 2022a).

The IPCC WG II concludes that there is no region in the world that has not been impacted by climate change. Ecosystems are deteriorated, damages increase and challenges rise especially for the most vulnerable. The report states that the change is already irreversible in many cases. If the 1.5 °C level is exceeded, it will lead to the extinction of species and losses of entire ecosystems. This is especially a danger to mountain tops, coral reefs and coastal wetlands. Beyond 1.5 °C there will be more heatwaves, water scarcity, food insecurity, slides risks, diseases and increasing mental health challenges. 'Our assessment clearly shows that tackling all these different challenges involves everyone – governments, the private sector, civil society – working together to prioritize risk reduction, as well as equity and justice, in decision-making and investment,' said IPCC Working Group II Co-Chair Debra Roberts (IPCC, 2022).
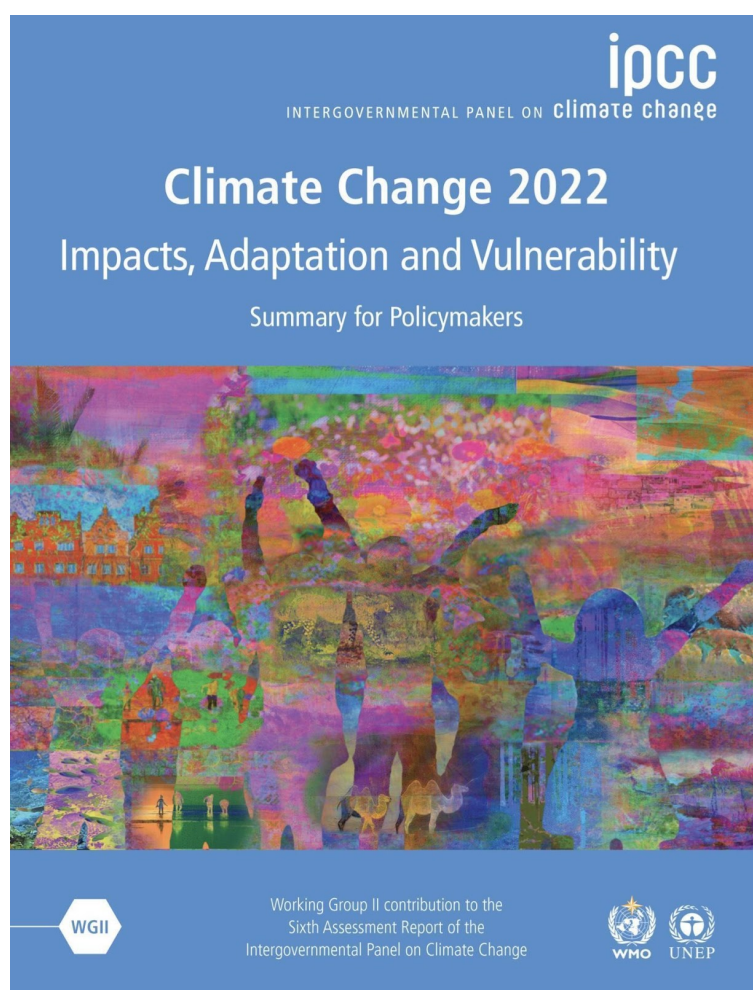
[Cover of the WG II report]. (2022).
https://reliefweb.int/report/world/climate-change-2022-impacts-adaptation-and-vulnerab ility
Figure 2: Cover of the WG II report

A very important conclusion of the IPCC assessment is this: adaptations implemented so far are not sufficient. The report shows significant implementation gaps. Especially the financing of the procedures does not work efficiently. Funds are rarely spent where most needed. And even when there are better adaptation measures established, their contribution to improve our situation will be limited. Adaptations cannot tackle all kind of losses and damages and can even cause new problems when their methods do not fit well with other procedures implemented to reduce climate change.

The IPCC report therefore demands stronger efforts to reach a climate-resilient world. Enhanced adaptations are necessary to reduce risks caused by climate change and find the way to a more climate-resilient development. It is crucial to reduce greenhouse gas emissions through ambitious mitigation and increase concerted efforts to achieve the Sustainable Development Goals (SDGs). Especially cities need to immediately find the way to a sustainable and resilient development. Future options of a beyond-1.5 °C-degree scenario are very challenging, but may simply not be possible if we exceed 2 °C. The science is clear. But it is also clear that international cooperation, political will and scaled-up investment are necessary. 'The scientific evidence is unequivocal: climate change is a threat to human wellbeing and the health of the planet. Any further delay in concerted global action will miss a brief and rapidly closing window to secure a liveable future,' said Hans-Otto Pörtner, the other Co-chair of the report (IPCC, 2022).

WG II introduced several new components in its recent report: An atlas offers insights to data and findings on observed and projected climate change impacts and risks from global to regional scales. Since 2015, 270 authors from 67 countries have worked on the WG II report as coordinating authors (47), lead authors (184) or review editors (39). Additionally, 675 contributing authors were involved to check more than 34,000 references for citation and over 62,000 comments to the draft.

The WG II report is the second contribution to the Sixth Assessment Report (AR6) of IPCC. WG I released its report in August 2021: Climate Change 2021, the Physical Science Basis (Reuters, 2021). The WG III contribution followed in April 2022. IPCC announced the final Synthesis Report of the Sixth Assessment Report to be completed within the end of 2022.

EU and Taiwan's strategies combating climate change

Overview of climate change in Taiwan

The 2017 Report on Climate Change by Taiwan's Ministry of Science and Technology (now National Science and Technology Council, NSTC) revealed the extent of climate change in Taiwan and its future impact. According to the report, from 1900 to 2012, the average temperature has risen by 1.3 °C and may even rise by 3.0 to 3.6 °C above the 1986 - 2005 baseline average by the end of the century under the highest emissions scenario (RCP8.5) (Chou et al., 2017). No less expected are more polarized rainfall patterns evidenced by more frequent dry years from 1961 to 2017 and an upward trend of torrential rain occurrences.

Climate change causes a wide range of impact to the economy, environment and human well-being. Here, we provide examples of rice yield reduction, sea level rise and diseases.

Global warming intensifies rice crop's nighttime respiration and leads to rapid loss of nutrients and reduced crop yield and weight (Peng et al., 2004), whereas increased frequency

of extreme weather events such as severe rainstorm, drought, and cold wave can inflict serious damage on rice agriculture. Long periods of rainfall can cause diseases, fruit damages and premature sprouting, while intense rain may suffocate crops. Drought is also dangerous for rice cultivation, which is among the most water-demanding agriculture. A long period of drought prior to May 2021 was responsible for over 800 million TWD agricultural loss (Wu & Chen, 2022).

From 1993 to 2003, the coastal sea level of Taiwan rose in average by 5.7mm per year, which was three times the global figure. With this pace, Taiwan's sea level will further increase by 0.40m to 0.62m, threatening coastal and lowland environments and damaging nearby fisheries (Tung et al., 2017).

The change in temperature and rainfall patterns caused by climate change greatly favors the survival of *Aedes aegypti*, a dengue fever vector mosquito, in central and eastern Taiwan. It is estimated that, by the end of the century under the highest emissions scenario, dengue fever infection may become more prevalent in these areas (Fu et al., 2020).

基期（1986-2005）   近未來（2016-2035）   世紀中（2046-2065）   世紀末（2081-2100）
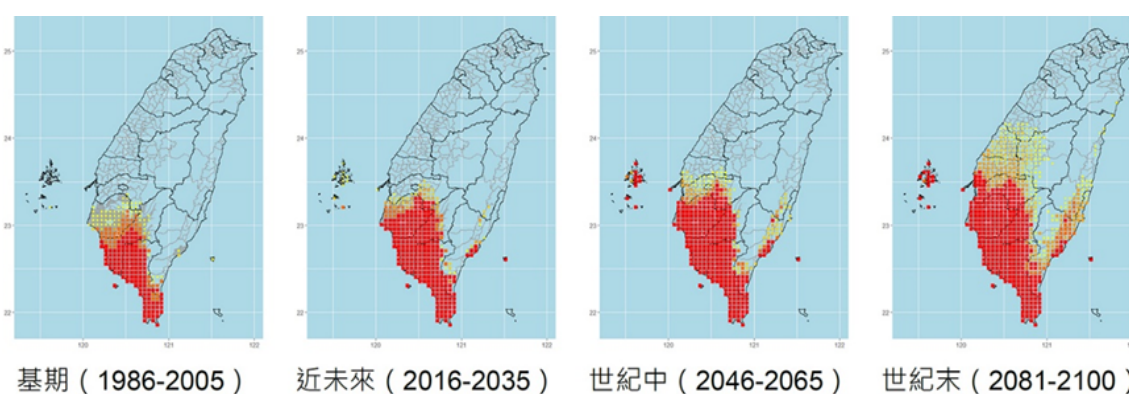
Figure 3: Future *Aedes Aegypti* distribution confidence level map under the RCP 8.5 scenario

Taiwan's climate adaptation strategy

National Climate Change Adaptation Policy Guidelines

In 2012, the Council for Economic Planning and Development (now National Development Council) announced the National Climate Change Adaptation Policy Guidelines as the framework for climate adaptation strategies (Council for Economic Planning And Development, 2012). The goal is to enhance adaptation capacity and address vulnerability. The guidelines list eight key adaptation areas, each with its responsible government institution and priorities. These include disasters (NSTC), critical infrastructure (Ministry of Transportation), water (Ministry of Economic Affairs), land use (Ministry of Internal Affairs), coastlines (Ministry of Internal Affairs), energy and industry (Ministry of Economic Affairs), agriculture and biodiversity (Council of Agriculture) and health (Ministry of Health and Welfare).

Though the specifics vary, the adaptation units adopt a set of common policies including risk research and assessment, risk monitoring and alert mechanisms, risk mitigation through education and staff training, risk avoidance through governance of risk areas and construction of risk preventing infrastructures, research and development of adaptive technology, natural resource protection, restoration and management, regulatory reforms and development principle in line with sustainable and adaptive development.

Taiwan Climate Change Projection Information and Adaptation Knowledge Platform (TCCIP)

To plan adaptation measures, policymakers need to rely on the evidence of scientific research that assesses the trend of climate change, predicts the extent of climate change impact and identifies areas of risk. For this purpose, the National Science and Technology Center for Disaster Reduction under the National Science Council (now NSTC) launched the TCCIP project in 2009 as Taiwan's leading climate change research body (Hsu et al., 2011). Its goal was to develop an integrated platform for cross discipline climate change research and applied knowledge, apply research results on adaptation policies, assess Taiwan climate change trends and promote Taiwan climate change research. The project has now entered its fourth phase and its competences now include adaptation policy studies and knowledge brokering with industry stakeholders and the public while continuously supporting government adaptation efforts with targeted studies (TCCIP, 2022). Its aim is to expand and optimize climate science services to all social actors through more customized functions and data (Chang & Chen, 2021).

EU's strategy against climate change

The Green Deal of the European Union

Starting with the new Commission in 2019 the European Union developed a massive wave of new initiatives for climate actions. One of these actions is the European Climate Law with a legally binding target of net zero greenhouse gas emissions by 2050 (European Commission, 2022b). According to this law, the EU Institutions and the Member States have to take all necessary measures to meet this target. In the first step, the net greenhouse gas emissions have to be reduced by at least 55% by 2030 compared to 1990. The EU environment ministers reached an agreement on a general approach on the Commission's proposal for a European climate law at the end of 2020, following the guidance of the European Council. After the Council and the European Parliament agreed upon the European climate law it was adopted in June 2021. With this law a European Scientific Advisory Board on Climate Change is established. It gives independent scientific advice and reports on EU climate measures. In the future, an intermediate climate target for 2040 will be developed.

The European climate law was one of the first elements established by the European Green Deal (European Commission, 2022a). Climate action is at the heart of the European Green Deal which is an ambitious package of measures to drastically reduce greenhouse gas emissions, investing massively in research and innovation while at the same time preserving the natural environment of Europe. Besides the Climate Law, the Green Deal includes the European Climate Pact to engage citizens and all parts of society in climate action, the Climate Target Plan to further reduce net greenhouse gas emissions by at least 55% by 2030 and the EU Strategy on Climate Adaptation to make Europe a climate-resilient society by 2050. To reach these goals, the European Commission adopted several detailed legislative proposals in June 2021 to revise its EU climate legislation, e.g., legislation regarding the emission trading system, the Effort Sharing Regulation and transport and land use legislation.

The Commission itself also intends to become a climate-resilient institution and employer. For this it developed an action plan which reflects the objectives of the Green Deal. It takes concrete measures across all its sites to become climate neutral by 2030. The EU was intensively engaged at the United Nations climate change conference in Glasgow (COP26). It

is determined to strengthen its role at international level to further lead negotiations regarding climate change.

Discussion

Will the message be lost?

A lot of scientists working in the field of climate research including those contributing to the recent reports for many years set the world society on alarm due to enormous risks arising in the future if not enough effective measures are established to battle climate change. Obviously, those in power are not acting according to the advice given by science. The reasons for this are numerous, and possibly and sadly this will be the case regarding the current reports, too. However, this time the situation could evolve even worse, since the WG II report was published during the first week when Russian troops crossed the border to Ukraine to start a brutal war mankind has not seen for many years. It is reported that the Ukrainian delegation called for news reporting on the war not to forget about the important scientific findings and connected the Russian aggression to the global dependency on oil. Oleg Anisimov, scientist and member of the Russian delegation, even apologized for the conflict (Mathiesen, 2022). But finally, it is quite clear that the gap between science and policy became wider after this war transferred our world onto another level.

This is also what Fiona Harvey wrote for *The Guardian*, 'The Intergovernmental Panel on Climate Change warned that the dangerous impacts of climate breakdown are already being felt and are accelerating rapidly. Has that message been heard (Harvey, 2022)?' Her conclusion is that the IPCC report will not be ignored and governments will continue working on their plans to cut greenhouse gas emissions to limit global heating to 1.5 Celsius degree above pre-industrial levels. There was great interest in what would be presented at COP 27, the next UN climate summit, at the end of 2022.

How are the European Governments adapting to all the crises?

There was much enthusiasm when the new president of the EU commission Ursula von der Leyen started her presidency in December 2019. Especially promising were the announcements of the new commission to develop a new Green Deal for the European Union with powerful instruments combating climate change. Only a few months after the start of the new commission the coronavirus pandemic reached European countries and changed the whole situation. At the Franco-German Meseberg Climate Working Group in April 2020 there was still much hope to come back to the original plans, just started before together. In the common Statement on the European Green Deal and a European Recovery Plan both countries expressed to 'shift towards rebuilding a more sustainable European economy in the medium and long term' as soon as possible. France and Germany believed that the Green Deal provides a framework for a recovery plan aiming to stimulate the economy in a sustainable and innovative way and that it offers the opportunity for European global leadership in supporting partner countries, in particular developing countries. At this time it was agreed that climate action is a central building block of the European Green Deal with top priority. Both partners were firmly committed to fulfill the goals of the Paris Agreement and inspire other global players to raise their ambition. They welcomed the objective of a climate-neutral EU by 2050 and the proposal for the EU Climate Law that aims to fix the 2050 climate neutrality objective in the EU legislation (Gouvernement *&* The Federal Government, 2020).

What happens to the Green Deal?

A lot of this enthusiasm has been lost since then. The challenges of the pandemic absorbed much of the workforces of the commission. And after two years combating the coronavirus suddenly a war started in Europe, most of the people hit by great surprise and in fact unprepared. After this the question arises: What happens to the Green Deal? Environment stakeholders started first to ask this question. And it is no surprise that they have the same questions as before. Regarding the recent WG II report Alex Mason, head of climate and energy at World Wildlife Fund (WWF) European Policy Office said, 'We are fiddling around the edges while the world burns. This report shows we have the tools we need to tackle the climate crisis - but they need to be used much faster and more widely. For the EU, this means bringing its policies in line with science and making them socially fair: higher targets, ensuring polluters pay, supporting the most vulnerable and ending fake solutions like subsidising burning trees and crops for energy (WWF, 2022).' After all it seems we lost some years combating climate change and finally will find all of us even further back where we started before the pandemic and war found its way into this world.

Why is Taiwan voluntarily adopting climate measures?

In her dissertation, Milan Chen examined why Taiwan is voluntarily adopting climate measures that align with international agreements when it is excluded from participating in the UN climate regime (Chen, 2020). She also studied the basis Taiwan succeeds in passing the first climate legislation with legally binding targets in 2015. For this she conducted interviews with government officials, policymakers, and climate experts who were directly involved in the policymaking process of Taiwan. Furthermore, she analysed government records concerning the legislative details of the Greenhouse Gas Reduction and Management Act from 2006 to 2020. With all these activities Taiwan complies to the provisions of the UN climate agreements without legal responsibilities. Chen finally concludes that Taiwan primarily intends to expand its international space and to protect its export-oriented economy. She also found that concerns for climate challenges are less evident. In respect to the new scientific reports of IPCC, it seems obvious that Taiwan also took further measures to learn more about the importance of why further climate actions are reasonable and necessary.

How is Taiwan's climate adaptation strategy performing?

Taiwan's climate adaptation efforts have yielded several achievements. First, the research into the impact of climate change on Taiwan provides valuable information about Taiwan's climate development and the short to long term effect of climate change on Taiwan's environmental, social and economic security, which serve as knowledge and inspiration for adaptation strategies. The data analysis and projection technology of the TCCIP enables more detailed and accurate assessment of climate change impact that suits the diverse geographic conditions of Taiwan, providing policy makers with reliable information to map high risk areas and prepare responses (Lee et al., 2022).

The legislation of the Spatial Planning Act is another important step that marks a shift of Taiwan's development focus from economic growth to the well-being and sustainability of the society and the environment. Through categorising geographic areas according to their environmental significance and economic functions, it serves to define the different roles of each region and restrict harmful developmental practices (Chao, 2020).

Yet, Taiwan's strategy is not without shortcomings. One of the concerns is the lack of a dedicated government institution for climate adaptation. For now, policy making tasks are distributed among different existing ministries, without an overarching institution to direct these efforts. This may cause incoherence among different adaptation policies as ministries may have different priorities (Lin, 2015). Secondly, there has been no concrete and formalized procedure for the planning and review of adaptation projects, without which their effectiveness, feasibility and room for improvement will be hard to determine (Lin, 2015). Moreover, the adaptation guidelines did not promote active and sustained civil society involvement within the policy making process. Climate change brings challenges of varying scales, from the international to the local level, with each community having their own distinct environmental, social and economic adaptation concerns. The participation of local stakeholders ensures that the most important problems are addressed with adequate methods that pay attention to the distinct conditions of the specific community, whereas the results of the adaptation measures can be more closely monitored (Lin, 2015).

How can climate change get the awareness it deserves?

Despite the severity of climate change impacts, current media attention remains overshadowed by other key issues like the Covid pandemic and the Ukraine war. This can be attributed to several reasons: the long term causes and consequences of climate change makes it a poor fit for the fast-pace news cycle, the negative outlook provoked by the disappointment outlook toward policy makers and private sectors leads to public indifference regarding the subject, shortage of specialized reporters to supply accurate scientific clarifications, related events mostly happen in remote places, increasing the cost of coverage, the complex nature of climate change science and solutions, and differing interest of the owners and financiers of the media (Newman, 2022).

In response to these obstacles, Newman calls for more appealing climate coverage, stressing the need to increase media's scientific knowledge, cover more aspects related to human life, and promote more positivity by reporting on ongoing and fruitful climate actions.

Conclusion

As the 3rd part of the 6th AR was presented on 4th of April, UN Secretary-General António Guterres said that the report described a 'litany of broken climate promises' by policy makers and again repeated his call for more action, 'Climate activists are sometimes depicted as dangerous radicals. But, the truly dangerous radicals are the countries that are increasing the production of fossil fuels (United Nations, 2022).' After a lot of new scientific findings has been presented to the world community, now all eyes are directed to COP 27, which was held in Egypt in November 2022 (Geneva Environment Network, 2022). A big question asked by many is, how dark will the shadow of the Russian invasion of Ukraine be? Despite wars and conflicts among nations, climate negotiations have gone on for more than 30 years, insiders believe. Regarding the reports the German vice chancellor and minister for climate and economy Robert Habeck was cited with this statement, 'Fear is not a good advisor and never is. Hope is the right one' (Borenstein, 2022).

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Development of Learning Kit and Module for a Technology Design (RBT) Subject: Insights From Needs Analysis

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Abstract

The electronic design process included in the Malaysian secondary school syllabus pose challenges to the teachers as it requires teaching aids to facilitate more effective understanding and practice of the process. Therefore, this study aimed to identify key elements in the development of a Technology Design (RBT) learning kit for the electronic design topic of the RBT subject in the Malaysian secondary schools. This qualitative study used semi-structured interview protocol in conducting the needs analysis. Five teachers who were appointed as facilitators and had expertise in the field of electronics were selected via purposive sampling. The interview results were transcribed and analyzed using Atlas.ti software. Based on the needs analysis, all five respondents agreed that the subject of RBT needs teaching aids especially for the electronic design topic. They argued that existing learning kits use non-universal programming languages. Therefore, they suggested that the proposed learning kit must use open-source programming and allow easy references on the internet. All respondents chose the Arduino type microcontroller in the production of electronic design projects because it is open-source and universal. The implications of this findings call for relevant parties including teachers, researchers and the Ministry of Education to consider that the development of learning kits and modules for RBT learning kits for electronic design topic should be straightforward, simple to understand, and compact.

Keywords: Electronic Design, Learning Kit, Teaching Aids, Needs Analysis, Semi-Structured Interview, Microcontroller

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Introduction

Economically speaking, the world is increasingly challenging especially in terms of using technology in everyday life. Technology is seen as a basis for economic growth, however economic growth based on weak technology will falter in today's scenario (Raja and Nagasubramani 2018). Technologically advanced countries need to produce skilled workforce that not only have sensitivity to its professionalism but are always ready to accept change (Sidin et al. 2001). Empowering technology in education in all walks of life is one of the key efforts in the formation of tech countries. Therefore, one of the government's efforts is to introduce technological subjects into a secondary school syllabus.

Design and Technology (RBT) is one of the subjects offered in primary and secondary schools aimed at providing students with awareness and exposure to technology. RBT subjects can also foster students to think, give ideas and thus produce technology -based innovation products. The RBT subject has an electronic subtopic where students will learn about microcontroller, inputs, outputs, and programming that are important elements in the production of technical projects. However, this electronic topic is more difficult to understand than other topics as it involves programming and installing electronic circuits. This topic also involves practical where it requires hardware and software that allows students to design electronic projects starting from designing circuits, simulating, connecting input circuits, outputs, and microcontrollers, writing programming and testing circuit functionality. The process will be complicated if there are no special guides or references related to this topic. The selection of inappropriate hardware and software also affects the teaching and learning process of this topic. Thus, this topic requires teaching aids where it can help students learn electronics in the process of designing electronic circuits, building simulation circuits, connecting input circuits and outputs on microcontroller, learning programming, and then testing on circuits built.

The teaching aids developed are available for use directly in the production of electronic design projects to be built by students. Unfortunately, the characteristics or elements of the learning kits needed by teachers to facilitate the teaching and learning process are still unclear. Therefore, this calls for a study on the development of teaching aids for electronic topics for secondary school students focusing on the learning kits for electronic topics in RBT subjects. This study is essential in assisting better understanding among teachers about the development process that involves design processes of electronic circuit design and programming arrangement.

Objectives

This study was conducted to determine the need analysis for learning kit on knowledge of electronic design in Design and Technology (RBT) subjects for high school students. The specific objectives to be achieved are as follows:

1. Identify important elements in the development of the Learning Kit for the RBT Electronic Design topic in the Malaysian Secondary Schools.
2. Identify the technical features needed in the process of designing the learning kit for the RBT subject's electronic design topic.

Methodology

Respondent	Transcription	Analysis	Result
- Five expert teachers in the electronic field - selected via purposive sampling	The recorded conversation using semi-structured interview protocols are transcribed during the transcription process before analysis process.	-Data in analysis using Atlas.ti -The thematic approach -analysis important elements in the development of ABM learning kits	Used in the process of development kit for electronic topics RBT subjects

Figure 1: Summary of the research methodology

As shown in Figure 1, this study is a qualitative study involving 5 respondents or participants who were experts or main coaches among the electronic design subject teachers. The five teachers selected have expertise in the electronic field and have taught the subject for more than 5 years. They were selected as the sample for the study according to the purposive sampling procedure.

The researchers used a set of semi-structured interview protocols as the research instrument to obtain data on the module construction needs and electronic design learning kits. While the structured interview has a formalized, limited set of questions, the semi-structured interview on the other hand is flexible, allowing new questions to be brought forward during the interview as a consequence of what the interviewees have said (Ruslin et al. 2022).

Upon receiving their consent and confidentiality, the interviews with the five respondents were recorded and transcribed during the transcription process. After the interview, the analysis of the interview transcript was performed to see the meaning and feedback of the study participants. The theme analysis of the entire transcript was performed by comparing it from all respondents of the study using Atlas.TI 9 software which is a tool for data analysis to assist the researchers in managing the various data (Afriansyah et al. 2019). The raw data obtained from the interview transcripts were analyzed according to the themes and categories outlined in the study objectives using the thematic method.

Results and Discussion

Thematic analysis from the semi-structured interviews were conducted as part of the qualitative interview data analysis. The study participants were provided opportunity to express their own opinions during this semi-structured interview. The results of these findings were used in the development of the modules and learning kits for the RBT subject topics that will be used by secondary school teachers and students in Malaysia. The characteristics of the needs identified in developing electronic design learning kits are based on several technical requirements because of the transcript analytical processes divided into three themes which is the type of microcontroller and the language used, the design requirements and order of the learning kit and the requirements of the learning kit guide, through the data analysis conducted with the help of Atlas.TI 9. The suitability of ATLAS.ti for qualitative study can be gauged from the fact that it is primarily used for content analysis

and analyzing complex textual data (Gulsia and Yadav 2023). Figure 2 shows the results of the analysis using the Atlas.TI 9 sofware.
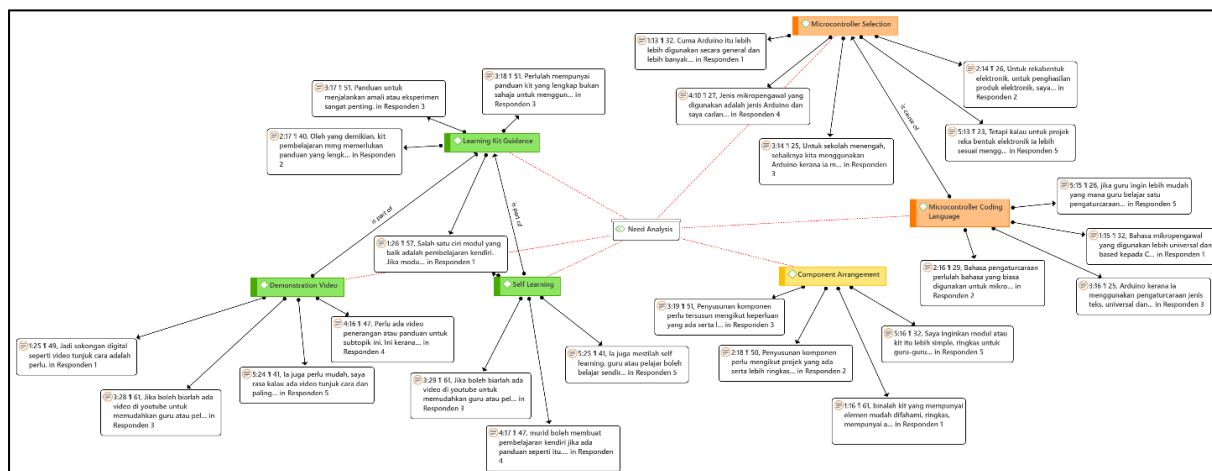
Figure 2: Findings in analysis using Atlas.ti 9 software

The findings show that there are three main themes that researchers need to consider. The selection of microcontrollers is closely related to the selection of programming languages. This is because each microcontroller has its own type of compatible programming. In addition, the design and arrangement of components should also be considered where the proper component arrangement will produce a more practical learning kit that will be carried out in the classroom. The learning kit also needs to have a handbook or reference that has self-learning features and complete with video demonstrations. These themes will be described in more details in the following subtopics.

Theme 1: Microcontroller Type Requirements and Programming Languages Used

The choice of microcontroller and programming language used is an important element in designing a learning kit for electronic teaching and learning processes. This is because the selection of microcontrollers or inaccurate programming languages will affect students and teachers. Therefore, understanding the concepts related to the microcontrollers is important for choosing the best hardware. There are many different types of microcontroller and application development cards on the market, it is observed that students have difficulty in where to start (Güven et al. 2017). The findings of this study show that all respondents agree that the type of microcontroller that will be used is open source and easy to find references. They also agree that the programming language used must be universal in which the language used must be widely used throughout other countries. All respondents also think that Arduino -type microcontrollers are ideal for use in the development of this learning kit. This is because the Arduino-type microcontroller uses the Base C ++ programming language which is widely used for the production of electronic projects and innovation. For example, Respondent 1 (R1) says that:

R1: "*Bahasa mikropengawal yang digunakan perlu lebih universal dan based kepada C yang digunakan secara meluas.*"
(The language of microcontoller used should be more universal and based to the widely used C.)

Arduino's constructor programming code is built in C. This language is quite simple to learn, and it comes with a special generalised development environment that enables even those

without a high level of software development expertise to create unusual projects (Tukhtanazarovich, 2021).

Meanwhile, Respondents 3 (R3) and 4 (R4) said the selection of Arduino -type microcontroller was best because of its use of use and examples of programming on the Internet.

R3: "*Untuk sekolah menengah, sebaiknya kita menggunakan Arduino kerana ia menggunakan pengaturcaraan jenis teks, universal dan open source. Rujukan pula banyak terdapat dalam internet membolehkan murid atau guru belajar secara sendiri.*"
(For secondary school, we should use Arduino as it uses text-type, universal and open-source programming. Many references are available on the internet allowing students or teachers to study by self -learning.)

R4: "*Jenis mikropengawal yang digunakan adalah jenis Arduino dan saya cadangkan juga jenis ini yang terbaik. Ini kerana mikropengawal jenis ini lebih universal dan open source. Bila open source jadi ramai yang menggunakannya. Jadi contoh-contoh projek dan pengaturcaraannya banyak terdapat di internet.*"
(The type of microcontoller used is Arduino type and I also suggest this type of best. This is because this type of microcontroller is more universal and open source. When the open source it becomes a lot of use. So, examples of projects and programming are available on the internet.)

Theme 2: Design and Learning Kit Components Needs

When asked about what the teacher needs for the learning kit design in the RBT teaching and learning process of electronic design topics, the respondents said that they needed a structured and simple learning kit. Three respondents said the component of the learning kit components should be simpler to facilitate the understanding of both students and teachers. For example, according to Respondent 2 (R2) below, the design kit should be in a simple project and has three elements that can interest students namely movement, sound, and light. Furthermore, maintenance of the kit should be kept minimal, requiring no more than a simple replacement of any damaged components. Furthermore, it is again necessary to keep functionality minimal in order to avoid overloading the student with too much information and facilitate the understanding of basic concepts (Junior et al. 2013). The learning kit is aims to make it easier for students to learn and understand the subject matter (Kob et al. 2019).

R2: "*Penyusunan komponen perlu mengikut projek yang ada serta lebih ringkas. Murid akan tertarik kepada tiga komponen ini iaitu, bergerak, berbunyi dan menyala. Jadi ouput untuk ABM tersebut pelulah adalah 3 komponen tersebut yang bleh menarik minat murid untuk belajar.*"
(Component arrangement needs to be in accordance with existing projects and is simpler. Pupils will be attracted to these three components, namely, moving, sounding and lighting. So the OUTPUT for the learning kits is the three element that can attract students to learn).

The same response was also given by Respondent 4 (R4).

R4: "*Saya inginkan modul atau kit itu lebih simple, ringkas untuk guru-guru supaya guru boleh menggunakannya dengan lebih mudah. Ia perlulah mudah untuk difahami disebabkan oleh modul dan kit yang lebih ringkas itu tadi.*"
(I want the module or kit to be simpler, simple for teachers so that teachers can use it more easily. It should be easy to understand because of that simpler module and kit.)

Theme 3: Learning Kit Usage Guide Requirements

All five respondents said they needed a guide or handbook on the use of the learning kits to be developed. This is because the learning kits on the market do not have a complete and appropriate handbook that they want to teach in the classroom. They recommended that the modules detail out how to teach skills using the learning kits. Among the suggestions presented are detailed steps, methods, techniques, analogies and examples of appropriate applications.

Four respondents suggested that a handbook or module developed with the Learning Kit had a video demonstration to facilitate the teaching and learning process. For example, Respondent 3 (R3), Respondent 4 (R4) and Respondent 5 (R5) stated that video suggestions for students to learn on their own.

R3: "*Jika boleh biarlah ada video di youtube untuk memudahkan guru atau pelajar access agar senang kita belajar secara kendiri. Jadi murid tidaklah mengharap pada buku teks sahaja..*"
(If possible, there is a video on YouTube to make it easier for teachers or students to access it to be easy to learn on our own. So students not refer on textbooks only.)

R4: "*Perlu ada video penerangan atau panduan untuk subtopik ini. Ini kerana murid boleh membuat pembelajaran kendiri jika ada panduan seperti itu. Jadi murid tidak bergantung sepenuhnya kepada guru.*"
(There should be a description video or guide for this subtopic. This is because students can do self-learning if there is such a guide. So students are not entirely dependent on the teacher.)

R5: "*Ia juga perlu mudah, saya rasa kalau ada video tunjuk cara dan paling penting adalah simple. Ia juga mestilah self learning, guru atau pelajar boleh belajar sendiri.*"
(It also needs to be easy, I think if there is a video demonstration and most importantly it is simple. It must also be self learning, teachers or students can learn on their own.)

Conclusion

The findings of the study and discussions highlight that teachers need the RBT subject learning kits for electronic design topics with important elements that can help facilitate the teaching and learning process. The technical elements of the discussion should be considered in the learning kits development process. The resulting learning kits also need to have a clear handbook or module because electronic topics are topics that involve skills and practicality. The learning kits are aimed at enhancing the achievement of RBT subjects in electronic design topics as well as improving skills in the development of electronic design projects. Finally, the learning and teaching activities generated through the suggestions raised in the learning kits developed can be used as an effective teaching and learning guide for teachers to facilitate STEM learning among students in the Malaysian secondary schools.

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Supporting of Entrepreneurship Education, Entrepreneurial Orientation, and Factors Related to the Intention of Being an Entrepreneur of Generation Z

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Abstract

This research aimed to study the entrepreneurial characteristics of Generation Z students, the relationship between the population characteristics,supporting of entrepreneurship education, entrepreneurial orientation and entrepreneurial intention. It also examined the relationship between psychological factors that affect entrepreneurial intention and the ways to promote new entrepreneurial skills in educational institutions. Data was collected by survey research of Generation Z students, focus group and in-depth interview. The results showed that Generation Z students had all 5 entrepreneurial characteristics, creative and innovativeness, Competitive aggressiveness, proactiveness, risk-taking, and autonomy. In addition, Individual entrepreneurial orientation were positively correlated with entrepreneurial intention. The population characteristics, especially number of activities to promote entrepreneurship of educational institutions, work experience during study and having their own business, are related to Individual entrepreneurial orientation and entrepreneurial intention. Self-efficacy, entrepreneurial attitude and social norms of influential individuals also related positively correlated with entrepreneurial intention. The guidelines for educational institutions to promote entrepreneurial skills for students include creating opportunities for students to gain experience in the industry, creating a space for students to have the opportunity to showcase their work and their creativity, providing appropriate courses and teaching methods to promote entrepreneurial characteristics for students and having a center or agency in the university that serves to support students.

Keywords: Entrepreneurship Education, Entrepreneurial Orientation, Entrepreneurial Characteristics, Entrepreneurial Intention

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Introduction

The meaning of an entrepreneur is a person who is important in the capitalistic economic system as a person who finds new ideas and business opportunities and gathers capital to establish a business, to organize the business internally, and to manage the operation of the business in order to serve the public (Rumakhom, 1997). Entrepreneurs are considered growth agents of a country because they bring changes to economical, technological and organizational environments. Some of their major accomplishments include the creation of new job possibilities and the development of new goods, services, and industrial processes.

Thailand was ranked one best country to start a business (Best Countries to Start a Business) in 2020 out of 73 countries (surveyed by U.S. New & World Report). Moreover, the number of small and medium enterprises (SMEs) at the end of 2018 totaled 3,077,822 companies and was increasing every year until 2021 there were 3,171,429 companies. Supporting the growth of SMEs is another approach that meets the national strategy to reduce social inequality and create economic and social growth.

Today's world is being rapidly changed from new technologies and innovations. Many businesses have been disrupted by new technologies and new business models. Many businesses are shrinking the size of their organization, reducing employment and unnecessary costs. One thing that will be a solution to the problem is the development of human resources, especially adolescents. Encouraging new generations to become more interested in being an entrepreneur that help create jobs and promotes self-reliance.

Generation Z (born from 1997 to 2012) are entering the world of work and will be an important force in driving the economy and society of the country. They grew up with digital technology and in an era of global economic downturn. They therefore have different motivations from previous generations in terms of work. The study of Ernst & Young (2015), a major global accounting firm, found that the Generation Z is a group of people who are more able to support themselves as they grow and are more aware of their own abilities, more determine than previous generations, and have a creative and effective mindset with clear goals and realistics rather than the world of dreams, resulting in this group being more entrepreneurial than previous generations. The survey results of Ernst & Young clearly stated that this group wants to do their own business more than work within an existing organization.

The growth of new enterprises (start-ups) in the age of digital technology challenges the younger generation to be a competitive producer of goods and services in today's world. Promoting entrepreneurship can be done even before becoming an entrepreneur or while studying, in order to prepare to become an entrepreneur in the future. Many studies have shown the importance of entrepreneurship education in developing the desire to become an entrepreneur (Farashah, 2013; Kuehn, 2008).

Understanding the factors that lead a person to become an entrepreneur is important in developing new entrepreneurs, as entrepreneurship is a complex process involving both cognitive systems and behavior (Hisrich et al., 2013). A key characteristic that leads to entrepreneurship is entrepreneurial intention, which is an individual's awareness and confidence in their tendency to create a business and have a plan to do so in the future. This is the first step in starting a business because entrepreneurial intention is a significant variable that affects future behavior according to the theory of planned behavior (Ajzen, 1991).

This research aims to study the entrepreneurial characteristics of Generation Z who are currently in education, as well as the intention of being an entrepreneur and to find factors related to entrepreneurial intention. This work benefits educational institutions and various business incubators to increase the level of willingness to become an entrepreneur and create a new digital business of the Generation Z, as well as being a way to develop the potential of people to support the growth of the country by job creation and promote self-reliance.

Objectives of the study were to investigate

1) The relationship between the population characteristics, supporting of entrepreneurship education, entrepreneurial orientation and entrepreneurial intention.
2) The relationship between psychological factors that affect entrepreneurial intention.
3) The ways to promote new entrepreneurial skills in educational institutions.

Entrepreneurial orientation

Academics and researchers give importance to the study of entrepreneurial orientation (EO) because it is important for overall growth and innovation in business. Dess and Lumpkin (2005) pointed out that entrepreneurial orientation has a direct and sustained impact on organizational performance. Moreover, Rauch and colleagues (2009) said that entrepreneurial orientation is important for top managers in setting organizational goals, maintaining organizational vision, and creating strategies to create a competitive advantage over competitors.

Entrepreneurial orientation (EO) is a concept originated from Miller (1983) which consists of three dimensions, namely innovativeness, pro-activeness and risk-taking. Dess and Lumpkin (2005) had developed the concept and proposed five dimensions for entrepreneurial orientation that can be used in synergy to improve the operational capability of the business.

1) Creativity/Innovativeness: is the tendency to pursue creativity and experimentation.
2) Risk taking: refers to decisions and actions under uncertain circumstances.
3) Proactiveness: is the tendency to anticipate and act on future needs rather than reacting to events after they unfold.
4) Autonomy: refers to whether an individual or team of individuals within an organization has the freedom to develop an entrepreneurial idea and then see it through to completion.
5) Competitive aggressiveness: is the tendency to intensely and directly challenge competitors rather than trying to avoid them.

Khara Sawai, et al. (2012) studied that entrepreneurial orientation has nine components: self-reliance, achievement orientation, innovation, perseverance, creativity, risk-taking, self-confidence, problem-solving, and responsibility. These components have a relationship with the success of businesses in the lower northern region of Thailand.

From the characteristics of entrepreneurs that had been studied, this study will be used the 5 characteristics of Dess and Lumpkin (2005), because it is comprehensive and used as a framework for studying in many countries.

Entrepreneurial intention

Entrepreneurship is an intentional and planned behavior (Krueger et al., 2000). The concept of entrepreneurial intention means the conscious state of mind that precedes action and directs attention toward entrepreneurial behaviors such as starting a new business and becoming an entrepreneur (Moriano, et al., 2012). It is the first step of starting a business because intention is an important variable that affects future behavior. (Ajzen, 1985). A number of studies have employed intention-based theories such as Theory of Planned Behavior (TPB) as a framework for study entrepreneurial intention (Moriano, et al., 2012). Several academics were interested in studying entrepreneurial intention among university students because they have a high potential to become successful entrepreneurs. During their studies, students must complete various projects, including planning their own life projects, which differ depending on their characteristics and social context" (Hong et al., 2012).

Theory of planned behavior (TPB)

Theory of planned behavior (TPB) is a behavioral theory that investigates the reasons that lead to the production of human behavior (Ajzen, 1985).TPB proposed three core components, namely, attitude, subjective norms, and perceived behavioral control, together shape an individual's behavioral intentions and then lead to the production of human behavior. Attitudes towards user behavior are influenced by the user's feelings or attitudes associated with performing a particular behavior. Social norm refer to the people's perception of behavioral expectations by individuals and groups who serve as an important reference for a person, such as family, friends and teacher. Perceived behavioral control is an individual's perceived ease or difficulty of performing the particular behavior. The TPB model is applied from many studies in the field of entrepreneurship intention to help develop the field of entrepreneurship and support the entrepreneurship intention of young people at the university level (Yang, 2013; Al-Mamary, 2022).
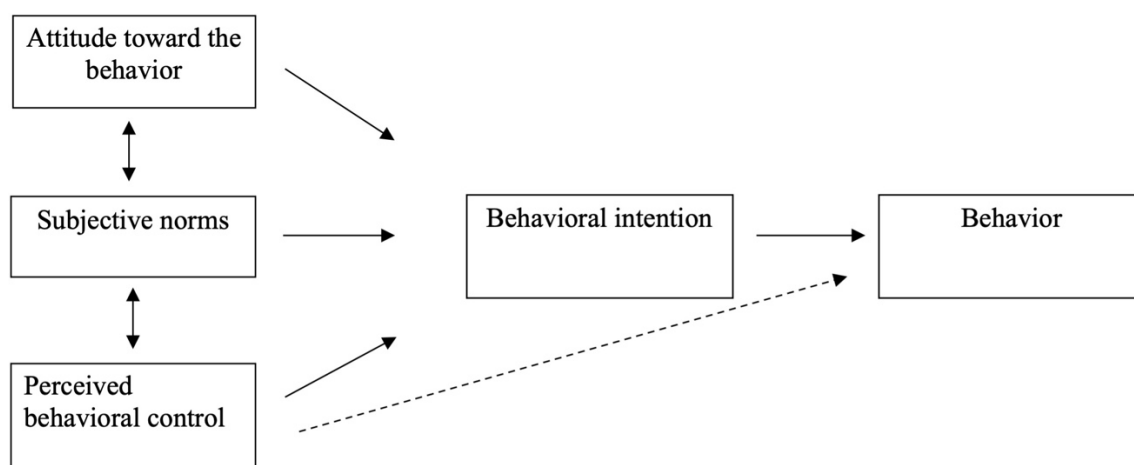
Figure 1: Theory of planned behavior model

In this research, the psychology factors that affect the entrepreneurial intention from the framework of theory of planned behavior were used. In this case, attitude towards entrepreneurship means feeling or personal desirability in becoming self-employed. Subjective norms means the perception of significant persons about being an entrepreneur. Entrepreneur's self-efficacy is an individual's perceived ease of being an entrepreneurship or start their own business.
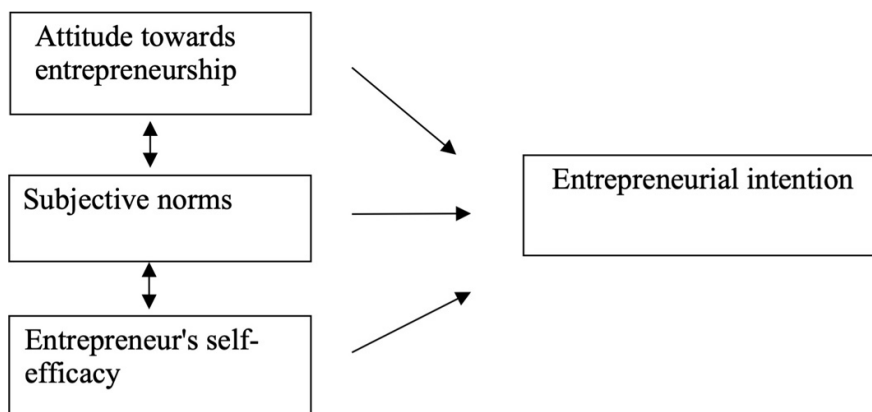
Figure 2: The TPB Model in the study

The role of education institution on supporting of Entrepreneurship

The university environment has a significant impact on developing students' entrepreneurial intention. Education about entrepreneurs and support from the university is a way for students to gain skills and knowledge related to entrepreneurship and to have an impact on the career expansion of students who are interested in entrepreneurship (Henderson & Robertson, 2000). In addition, supporting and providing knowledge from educational institutions affect the entrepreneurial intention of the students (Kuehn, 2008; Farashah, 2013). Universities that educate students on entrepreneurship (e.g. training programs or financial support) will increase the chances that students will be involved in generate a new business (Turker & Selcuk, 2009; Maheshwari et al., 2022). A study conducted in the university level student group by Anong Rungsuk (2016) found that attitudes towards entrepreneurship, self-perceived ability to control behavior, and management of education towards entrepreneurship had an effect on the intention of business administration students to become entrepreneurs. Kusumawardhany and Dwiarta's study (2020) found a positive relationship between an individual's attitude towards entrepreneurship and institutional support on the intention of students to become entrepreneurs.

Encouragement of proper entrepreneurship education is important in developing an individual's entrepreneurial abilities. Robinson and Stubberud (2014) found that norwegian and American students who completed an entrepreneurship program in their study agreed that they were more creative and innovative and demonstrates a higher entrepreneurial intention than ever before.

Research framework
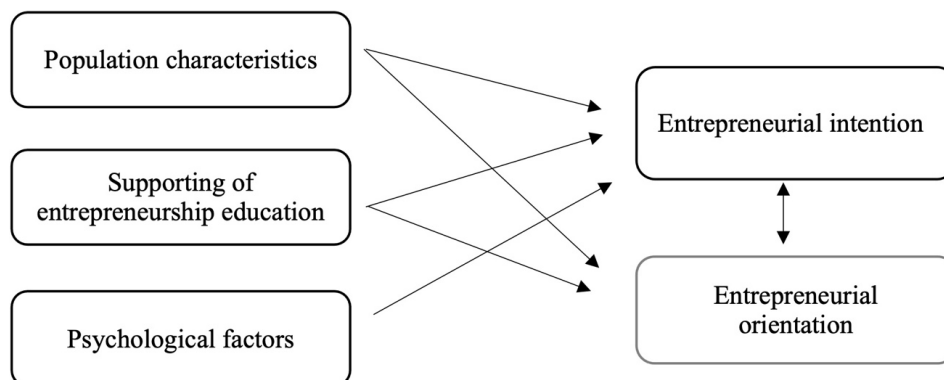
Figure 3: Research framework

Methodology

Mixed Method was used in the study, including survey research, focus group, and in-depth interview. The sample group of the survey research consisted of 523 Generation Z university students in Bangkok and outskirt, 8 students in focus group, 8 students and 3 university professors in in-depth interview.

The questionnaire consisted of a series of question items to assess each variable; population characteristics, supporting of entrepreneurship education, psychological factors, entrepreneurial intention and entrepreneurial orientation. The details are as follows: close ended question on population characteristics and supporting of entrepreneurship education, and five-point Likert Scale questions on psychological factors, entrepreneurial intention and entrepreneurial orientation and the score ranged from strongly agree (5), agree (4), neutral (3), disagree (2), and strongly disagree (1). The data was subsequently analyzed using descriptive statistics and inferential statistics method.

Result

The study results can be analyzed and presented according to the research method and the objectives of the study as follows:

Data from quantitative research

Most of the 523 respondents were female (60.6%), aged between 17-24 years old, with an average age of 20.30 years old of respondents. Most of them were third-year students (47.0 %) and from social science students (44.2%). Nearly half of all students (48.9%) don't have their own business but are interested in having, 36.7% having a business at home, 14.1% having their own business, only 10.9% didn't have their own business and don't be interested in having a business. Forty-three percent of them had work experience in an agency/job related to business, 38.0% without experience, while 14.3% had work experience that was not related to the business, and 38.0 % never do an internship.

1) An analysis of the relationship between population characteristics and entrepreneurial orientation

The result showed that students with business-related work experiences have higher entrepreneurial orientation than those without work experience in Creativity/Innovativeness, Risk taking, Proactiveness, and Competitive aggressiveness. Students without their own businesses and not interested in having a business had less entrepreneurial orientation than other groups. Students from different fields of study (science, social science, humanity), however, didn't differ in their entrepreneurial orientation.

2) An analysis of the relationship between population characteristics and entrepreneurial intention

Students from different fields of study didn't differ in their entrepreneurial intention. Students with business-related work experiences have higher entrepreneurial intention than those without work experience. Students without their own businesses and not interested in having a business had less entrepreneurial intention than other groups.

3) Support from educational institutions to promote entrepreneurship for student

When asked about support from the university in promoting entrepreneurship, the majority of the samples reported that the university provides a wide range of entrepreneurial-related subjects to choose from (51.1%), the university adds entrepreneurial knowledge and skills into subjects that are not directly related to business (47.8%), the university encourages students to do internships in companies (47.8%), and the university has activities to build entrepreneurship, such as student fairs, business plan contest, model company, club, etc. (37.7%). On the other hand, only 9.9% addressed the university was not support in any way.

Supported activities of educational institutions	Frequency	Percentage
The university provides a wide range of entrepreneurial-related subjects to choose from.	267	51.1
The university adds entrepreneurial knowledge and skills into subjects that are not directly related to business.	250	47.8
The university has seminar activities or study visits that promote entrepreneurship.	157	30.0
The university has activities to build entrepreneurship, such as student fairs, business plan contest, model company, club, etc.	197	37.7
The university has centers or incubator that give advice on entrepreneurship to students	79	15.1
The university encourages students to do internships in companies	250	47.8
The university has activities or projects to help promote products or services of students who have their own businesses.	86	16.4
The university is not support in any way.	52	9.9

Table 1: Number and percentage of supported activities of educational institutions

4) The relationship between the number of supported activities of educational institutions and the entrepreneurial orientation of the respondents

In terms of the relationship between the number of supported activities of educational institutions and the entrepreneurial orientation of the respondents, the positive relationship was found in proactiveness (r^2 =.129), autonomy (r^2 =.125), and competitive aggressiveness (r^2 =.089),. The more activities the educational institution provided for students, the more characteristics it would have.

The number of supported activities of educational institutions and the entrepreneurial orientation	Correlation Coefficient (r)	Sig.
1. Creativity/Innovativeness	.080	.069
2. Risk taking	.073	.094
3. Proactiveness	.129	.003*
4. Autonomy	.125	.004*
5. Competitive aggressiveness	.089	.043*

*P-value ≤ 0.05

Table 2: The relationship between the number of supported activities of educational institutions and the entrepreneurial orientation of the respondents

5) The relationship between the number of supported activities of educational institutions and entrepreneurial intention of Gen Z Student

From the analysis of the relationship, a small positive relationship was found between the number of supported activities of educational institutions and entrepreneurial intention of Gen Z Student ($r^2 = .092$).

	Correlation Coefficient (r)	Sig.
The number of supported activities of educational institutions and entrepreneurial intention	**.092**	**.035***

*P-value ≤ 0.05

Table 3: The relationship between the number of supported activities of educational institutions and entrepreneurial intention of Gen Z Student

6) The relationship between psychological factors and entrepreneurial intention of Gen Z Student

The study of variables according to Theory of Planed Behavior (TPB) framework, namely, entrepreneurial attitude, entrepreneur's self-efficacy, and subjective norm of influential individuals, had positive relationship with entrepreneurial intention. The variable with the highest correlation coefficient was Entrepreneur's self-efficacy ($r^2 = .682$)

Psychological factors and entrepreneurial intention	Correlation Coefficient (r)	Sig.
1. Entrepreneurial attitude	.650	.000*
2. Entrepreneur's self-efficacy	.682	.000*
3. Subjective norm of influential individuals	.503	.000*

*P-value ≤ 0.05

Table 4: The relationship between psychological factors and entrepreneurial intention of Gen Z Student

7) Relationship between Entrepreneurial orientation and Entrepreneurial intention of Gen Z student

All dimensions of Entrepreneurial orientation had positive relationship with Entrepreneurial intention of Gen Z student. The correlation coefficient (r^2) was between .543 to .393.

Entrepreneurial orientation and Entrepreneurial intention	Correlation Coefficient (r)	Sig.
1. Creativity/Innovativeness	.543	.000*
2. Risk taking	.481	.000*
3. Proactiveness	.479	.000*
4. Autonomy	.393	.000*
5. Competitive aggressiveness	.490	.000*

*P-value $\leq$ 0.05

Table 5: Relationship between Entrepreneurial orientation and Entrepreneurial intention of Gen Z student

Data from qualitative research

According to the focus group and in-depth interviews, the instructors indicated Generation Z has a higher entrepreneurial nature than other generations that have been taught. The major factors would come from the changing in social environment and communication technology that facilitate doing business today easier than before. In addition, students do not want to work in organizations because they lack flexibility and independent, therefore they are turning to find freelance jobs or have their own business. Moreover, new technology encourage students be able to work in parallel while studying.

The instructors also pointed out the important characteristics for successful entrepreneurship in today's world are being courageous, taking risks, and the ability to quickly recover from failures in a constantly changing world.

In terms of educational institutions, some of them had a goal of creating a student's identity as a business literate person, including organizing internships for students to create a great experience that is different from studying in the classroom and will make the learners know their own interest faster.

The student samples viewed that Gen Z students are born with technological talent and have the skills to be able to work in a variety of tasks at the same time. Self-employment or have their own business is one of the ways to earn money in today's world. Gen Z want success in an entrepreneurial career higher than being a full-time employee. Then university's support for entrepreneurship both inside and outside of the classroom will give them the skills and inspiration to start their own businesses.

Regarding the influence of psychological factors, students saw that people around them, such as friends, peers, or mentors, could be sources of inspiration or examples of how being an entrepreneur is not too difficult for themselves. In addition, in the digital world social media influencers also play an important role for young people as role models for the success of

having their own business. Besides, student that had a positive attitude towards entrepreneurship would have motivation to be an entrepreneur or invest in their own ventures both now and in the future.

The guidelines for educational institutions to promote entrepreneurial skills

For educational institutions to promote entrepreneurial skills among Gen Z student require the following strategies:
1) Creating opportunities for students to have experience with the industry, for example, create partnerships with companies in co-teaching, send students to train in company. Creating a space for students to have the opportunity to showcase their creative work or innovation.
2) Creating suitable courses and teaching methods to promote entrepreneurial qualities among students.
3) Establishing an entrepreneurial incubation center or unit in the university that serves to support students.

Conclusion

Generation Z is a group of people who grown up to be more self-reliant, focus on goals, want to be independent, be realistic, etc. According to the Ernst & Young (2015) survey, it is clear that Gen Z people prefer to run their own business rather than work within a traditional organization.

Entrepreneurial orientation is the specific characteristics of an entrepreneur that will help them succeed in business. Entrepreneurship orientation is considered as a skill that can be developed through education and training in entrepreneurship and affects one's motivation to become an entrepreneur (Ibrahim and Lucky, 2014; Bolton and Lane, 2012). The results of this study found that the student in Generation Z had good levels of entrepreneurship orientation in each of the following areas: proactiveness, creativity and innovativeness, competitive aggressiveness, except for risk taking and autonomy in managing work. In addition, entrepreneurial orientation was also quite positive related to entrepreneurial intentions, similar with the result of many previous researches (Keat, et al., 2011; Wei-Loon, 2016). Then the entrepreneurship training should focus on enhancing students entrepreneurial orientation ability and increasing their entrepreneurial intention.

In addition, having work experience, particularly in a business-related organization or job, has a higher level of entrepreneurship orientation than those without work experience. It can be said that providing opportunities and encouraging students to try working in various businesses is a way to develop the characteristics of entrepreneurship from a young age.

In part of the psychological and social factors that are related to the intention to be an entrepreneur, the study found that the factors according to the framework of the Theory of Planned Behavior (TPB) wre all related to the intention to be an entrepreneur of Generation Z students, including the support received from the educational institutions in various forms.Then providing knowledge related to entrepreneurship, creating opportunities and encouraging students to experiment to work in various enterprises, therefore, help to developed the character, skill, and positive attitude of being an entrepreneur at a young age. Besides, creating a good role model for students by seniors or teachers will help build students' self-confidence in being entrepreneurs. Consistent with the findings of

Kusumawardhany and Dwiarta (2020), who found a positive relationship between an individual's attitudes and the intention to become an entrepreneur, as well as support from educational institutions, on students' entrepreneurial intentions. Fayolle and Liñán (2014) similarly found that knowledge about entrepreneurship was positively related to entrepreneurial intentions, and that the support of the environment, such as through the development of students' attitudes and the increase in their entrepreneurial intentions, was also an important factor.

The results of the study can be applied for curriculum administrators to encouraged an entrepreneurial mindset that not only study in an executive or management-related field but integrated in various subjects that can build important soft skills. The business owner should understand the characteristics of Generation Z to be able to draw on the potential and manage the team together with the new generation to achieve the goals of the business. Finally, at the level of national policy, national agencies must jointly set up a framework for working together to create continuity in developing new entrepreneurs because entrepreneurs are referred to as 'economic growth engines' in the business world.

Acknowledgements

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Knowledge Exchange for the Solar Decathlon Europe 2021-2022 Team Uniforms Design; Thai Local Craft Community, Fashion Design and Architecture Students

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Abstract

Functionable architecture students' uniforms are designed by teams of fashion design students as a representative team from Thailand to participate in the Solar Decathlon Europe 2021-2022 (SDE 21-22) competition aiming to build an energy-saving house in Wuppertal, Germany. Therefore, the focus of this study is for lecturers to structure an appropriate study plan, monitor the process and facilitate students including the collaboration of teaching and learning from interdisciplinary, architecture and fashion design, also to incorporate Thai identity through the integration of Thai local wisdom "Pha Khao Ma" (Thai loincloth) into the making of three sets of uniform prototypes; 1) workwear, 2) business casual attire, and 3) tailor suit. The study methodology is divided into four parts. First, the lecturers structure the study plan for the sixteen weeks class sessions. Next, architecture and fashion design students are working together under the lecturers' supervision and facilitation. Then, all parties visit and work together with the local community to create a uniform prototype through the use of "Pha Khao Ma." And finally, the prototype collection is completed by the fashion design students. As a result, in the studio classroom environment, students are not only learning to embrace different disciplines and aesthetics, but also creatively utilizing material from the local wisdom in a knowledge exchange process for a unique final design execution.

Keywords: Knowledge Exchange, Local Wisdom, Cross Culture, Thai Loincloth, Multi-Disciplinary Learning, Interdisciplinary Learning, Team Uniform, Knowledge Integration

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Introduction

Solar Decathlon Europe 2021-2022 (SDE 21-22) was a competition aiming to build an energy-saving house in Wuppertal, Germany. Architecture students from Bangkok University participated and represented Thailand while Fashion Design student were responsible for designing functionable uniforms for the competition. The uniforms needed to incorporate Thai identity through the integration of Thai local wisdom "Pha Khao Ma" (Thai loincloth) in the design. Therefore, the focus of this study is for the lecturers to structure an appropriate study plan, monitor the process and facilitate students. The collaboration included interdisciplinary teaching and learning in; architecture, fashion design, and Thai local wisdom to create three sets of uniform prototypes; 1) work wear, 2) business casual attire, and 3) tailor suit.

Objective

1. To allow the students to learn and work interdisciplinary; architecture, fashion design, and Thai local wisdom
2. To exchange knowledge between three groups of contributors; architecture students, fashion design students, and Thai local crafts community
3. To create three sets of uniforms prototypes; workwear, business casual attire, and tailor suit

Knowledge Exchange

The definition of "knowledge", the scientific literature reviewed does not offer a clear, dominant definition. The smallest common denominator is the generic notion of "information" set by our heuristic definition of the field (Damien, Marc, Jean & Émile, 2010). Knowledge related to skills, expertise or judgements can flow among colleagues, clients, suppliers or business partners (Nonaka et al., 2006). An extensive body of literature in sociology and anthropology has shown that different societies have developed different structures for exchange of items such as goods, status and information (Stephen & Chong, 2005). Knowledge exchange can be understood as a dynamic and fluid process which incorporates distinct forms of knowledge from multiple sources (Vicky, Simon, Allan & Susan, 2012). Knowledge exchange refers to activities and processes for transmitting and receiving knowledge (Coradi et al., 2015; Saifi et al., 2016). Knowledge exchange is the process during which members' perspectives, information, and know-how enter into team interactions and are shared and discussed (Gibson, 2001). Actual knowledge exchange systems are composed of numerous individuals, and the intragroup diversity of positions, opinions, preferences, and interests should never be discounted (Damien, Marc, Jean & Émile, 2010). Scholars have linked knowledge exchange processes with team effectiveness, defined most basically as the extent to which a team accomplishes its objectives (Mathieu, Maynard, Rapp, & Gilson, 2008). Specifically, researchers have found that a key differentiator in this process is whether the team has developed a psychologically safe communication climate, defined as an atmosphere marked by open, supportive communication (Edmondson, 2003; Gibson & Gibbs, 2006; Metiu & Rothbard, 2013). In this research, the lecturer used three groups of people to exchange their knowledge in both online and onsite channels due to the pandemic of COVID-19 period through a subject for Fashion Design student. There were Architecture students, Fashion Design students, and Thai local craft community in three groups of people to work collaboratively and exchange their own

different disciplines with the same purpose. The interdisciplinary knowledge exchange was the main key of the study.

Interdisciplinary Knowledge Exchange

1.   Architecture and Fashion Design
    - Team uniforms requirements
    - Architecture work details
    - Fashion design elements
    - Textile and materials recommendations
2.   Fashion Design and Thai local crafts community
    - Weaving process
    - Local wisdom
    - Colour theory
3.   Thai local crafts community and Architecture
    - Local wisdom
    - Weaving process
    - Team uniforms requirements
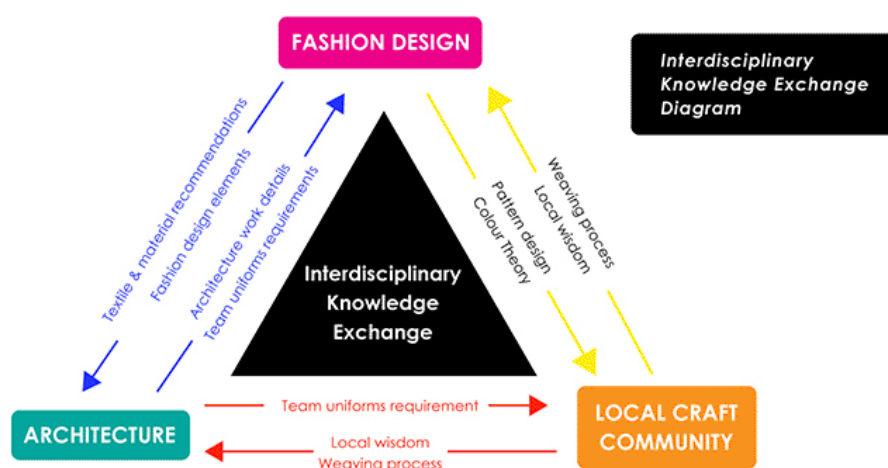
Figure 1: Interdisciplinary Knowledge Exchange Diagram

Teaching and Learning Experiences in Studio Class

This study used FD282 Fashion and Culture in Digital Society course in semester 1 of year 2021 to do this research. This course was for the third-year fashion and design students. The lecturer structured a sixteen weeks study plan to monitor the process and facilitate the students. The study plan was divided into three modules:
    1) Introduction to Team Uniform for Solar Decathlon Europe 2021-2022
    2) Brainstorm and Sketch
    3) Production Process

In those three modules, there were four learning models;
    1) Online Class
    2) Online Tutorial
    3) Home Studio or Self-study
    4) Onsite Experience

The online class and tutorial were employed due to COVID-19 restrictions and the lecturer used MS Teams program to run both models.

Creation Process

This picture below is a sixteen weeks study plan for FD282 subject in semester 1 of year 2021. In this study plan is to show four learning models, course outline, team teaching and interdisciplinary knowledge exchange throughout the course.
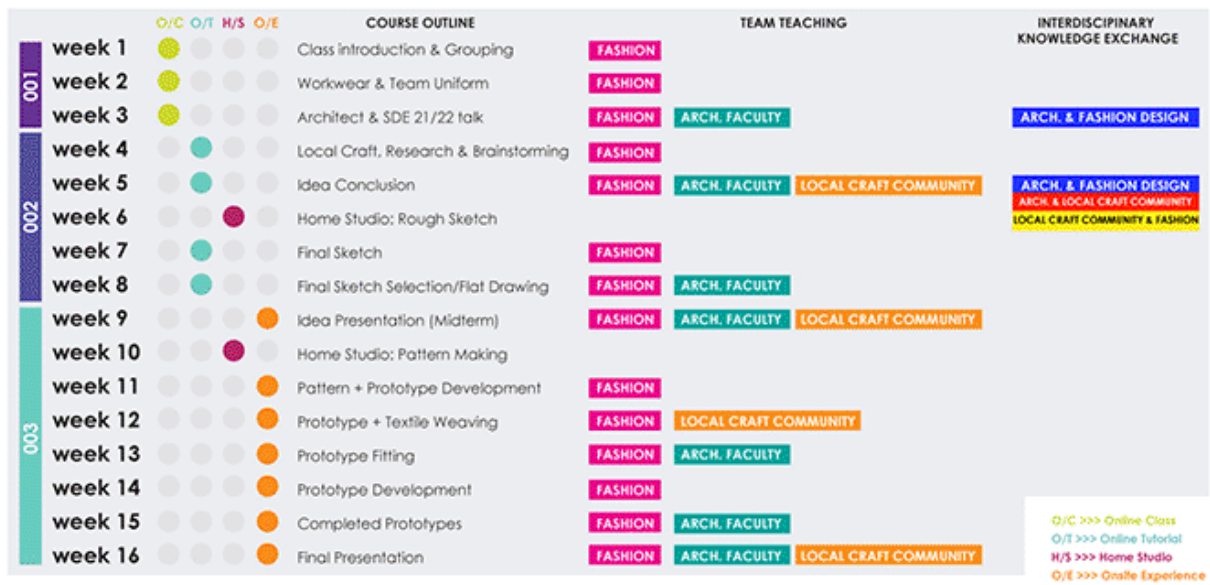
Figure 2: 16 weeks study plan for FD282 subject in semester 1 of year 2021

Module One: Introduction to Team Uniform for Solar Decathlon Europe 2021-2022
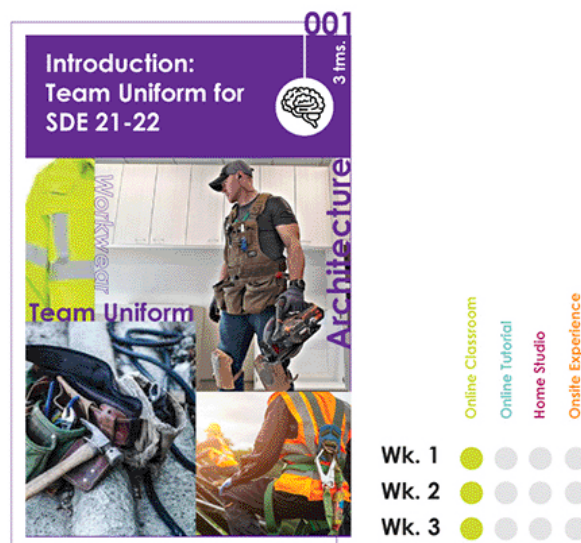
Figure 3: Module one: Introduction to Team Uniform for Solar Decathlon Europe 2021-2022

Week one: Class introduction and Grouping

In the first week, the lecturer began the subject, FD282 with the course introduction, information on the weekly class descriptions and assigned the fashion design students to divide into three groups according to the three categories of the team uniform; Workwear, Business casual attire, and Tailor suit. There were sixteen students in each group.

Week two: Workwear and Team Uniform

In the second week, a lecture on the introduction to workwear and the details of the team uniform were given by the lecturer to fashion design students in order to understand the scope and functional requirements before meeting the architecture students in the following week.

Week three: Architect and Solar Decathlon Europe 2021-2022 Talk

After learning in week one, fashion design students had a meeting with architecture students in an online class to discuss and share functional requirements design preferences and essential architecture knowledge to design the team uniform for SDE 21-22. Fashion design students in each group would receive necessary information and prepared to plan their design project. One of the most important elements requests was the incorporation of Thai identity in all of the uniform designs. Therefore, Thai traditional fabric from a local craft community was collaborated in this project.
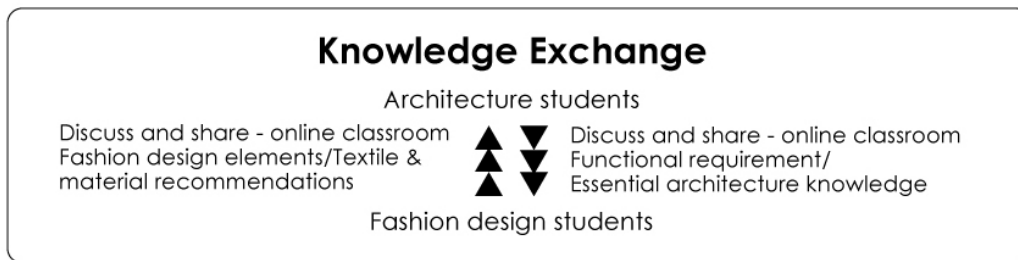
Figure 4: Knowledge Exchange between Architecture students and Fashion Design students

Module Two: Brainstorm and Sketch

Figure 5: Module two: Brainstorming and Sketch

Week four: Local Craft, Research and Brainstorming
In the fourth week, the second module started with each group of fashion design students presenting their researches on their inspiration and fashion design elements including; colour, silhouette, material, detail and technique. The lecturer gave feedbacks and recommendations to develop the design projects to be resubmitted in the following week.

Week five: Idea Conclusion
Each group of fashion design students presented their researches to the class; architecture students and local craft community representatives. Then all comments and feedbacks were collected to develop their sketches. Local craft community is a group of villagers from Roi Et province in the Northeastern part of Thailand, specialized in loincloth (Pha Khao Ma) weaving with local wisdom.

Knowledge Exchange

Fashion design students	Architecture students	Architecture students
Workshop and discuss - online tutorial	Discuss and comment - online tutorial	Workshop and discuss - online tutorial
▲ Pattern design/Colour theory	▲ Fashion design elements	▲ Weaving Process/Local wisdom
▼ Weaving Process/Local wisdom	▼ Team uniform requirement	▼ Team uniform requirement
Local craft community	Fashion design students	Local craft community

Figure 6: Knowledge Exchange between Architecture students, Fashion Design students, and Local Craft Community

Week six and seven: Sketch
In the sixth and seventh week, each group of fashion design students needed to sketch their idea within the assigned category to be selected as the final design. Workwear group was assigned to design an operation vest prototype. Business casual attire group needed to design a polo shirt and a hoodie prototype. Tailor suit group was responsible to design blazers, trousers and skirts prototypes.

Figure 7: Examples of sketch in each group

Week eight: Final Sketch

In the eighth week, there was an online meeting between fashion design students and architecture students to finalize the design for each category. After concluding all final sketches, fashion design students needed to provide flat drawings for each selection to develop into the production process.

Figure 8: Final sketch in each group

Module Three: Production Process

Figure 9: Module three: Production Process

Week nine: Midterm Presentation

The production process started in the ninth week during the period of midterm presentation. There were three groups of contributors participating in the midterm presentation: fashion design students, members of architecture faculty, and local craft community representatives. The lecturer was responsible for facilitating this presentation. All final sketches and flat drawings were concluded and ready to make toiles patterns in the next step. All works from

three groups of fashion design students were scored and evaluated as a midterm project by architecture student representatives and lecturers, local craft community representatives and a course lecturer.

Week ten to fourteen: Pattern Making and Toile Development
All prototypes were created by fashion design students in each group in the tenth to fourteenth week of the course. Each group made team uniform patterns, developed, and fitted their toiles until the design were perfect. In the twelfth week, the local craft community came to the class to submit the loincloth (Pha Khao Ma) example to fashion design students to use in their prototypes.

Week fifteen and sixteen: Final Outcome
In the fifteenth week, all groups of fashion design students needed to submit their completed prototypes of team uniform to the course lecturer, architecture students, and lecturers. In the sixteenth week, fashion design students needed to give a final presentation to the lecturer, members of architecture faculty, and local craft community representatives where their work would be assessed for grading. Two final outcomes could be derived from this research. Firstly, knowledge exchange between three groups of people; fashion design student, architecture students, and local craft community is to learn and share their own knowledge together. Another outcome was resulted in the final prototypes of three categories; workwear, business casual attire, and tailor suit.

Final Outcome

Workwear

Figure 10: Final outcome of Workwear

Business Casual Attire

Figure 11: Final outcome of Business Casual Attire

Tailor Suit

Figure 12: Final outcome of Tailor Suit

Conclusion

To conclude, the lecturer structured an appropriate study plan, monitored the process and facilitated students throughout the course. The project included the interdisciplinary of teaching and learning, collaborating architecture and fashion design and incorporation of Thai local wisdom "Pha Khao Ma" (Thai loincloth) into the making of three sets of uniform prototypes; 1) workwear, 2) business casual attire, and 3) tailor suit. The final designs were worn by architecture students of Bangkok University as a representative team from Thailand

to participate in the Solar Decathlon Europe 2021-2022, a competition aiming to build an energy-saving house in Wuppertal, Germany. In addition, the students did not only learn to embrace different disciplines and aesthetics, but also creatively utilizing materials from the local wisdom in a knowledge exchange process for a unique final design execution.

Acknowledgement

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Enhancing Students' Cognitive Memory Using Music in the Classroom

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Abstract

In the current educational settings till this day, students are facing certain distractions that disrupt and reduce their learning process efficiency. These distractions also affect the students' concentration in their learning environment. Music is known to have many capabilities to become one of many solutions to help students override these distractions as/ a huge influential part in the ways that humans interact with their surroundings. Sound is used in so many platforms to persuade human emotions, mostly in music, advertising, movies and television. The purpose of this research is to study how music can be used to influence the teaching and learning environment and to enhance students' cognitive memory so they can learn more efficiently. The research design we will be using is a mixed method. It will consist of Likert scale surveys, a Quasi-experimental research design to measure the participants' attitude and performance respectively and an open-ended questionnaire to gauge the participants' feedback. The sample design that will be used in this study is convenient sampling with random selection. The study will be performed on a cohort of private University students enrolled in Diploma of Creative Multimedia that were conveniently sampled. Finally, the results will be analyzed with the findings discussed to confirm the conceptual framework presented in this paper.

Keywords: Sound, Music, Student, Cognitive, Learning Experience, Classroom

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Introduction

There is a limit to the amount of information that humans can process at once (Mayer, 2014). In primary college learning, students' poor performance and negative attitudes have been identified. A research study was conducted with 198 randomly selected students from four universities to identify learning and teaching problems and solutions to improve performance (Betiku, 2001).

Students lack concentration in the classroom, disrupting and reducing the efficiency of their learning process (Stuart & Rutherford, 1978). Fatigue and drowsiness were among the factors that reduced students' concentration the most. A second disruptive factor was the teacher's skill in demonstrating application of the learning material. A third factor was environmental factors such as noise, ventilation, and lighting (Anderson, 1987). The same obstacles faced were again mentioned by (Mayer, 2001) and still exist today even more than 20 years later with more additional modern-day problems.

Learning, by definition, is the acquisition of knowledge or proficiency through study or experience. Outcomes of learning are reflected in behavioral changes, enabling people to do things they couldn't do before the learning process took place. However, this does not mean that changes should be made immediately after the learning experience. For example, soccer players learn to play specific positions and tactics by watching gameplay footage and videos during coaching sessions, but they don't translate what they learn into action until actual match time. No. This shows that even if a learner's behavior is not immediately influenced, it may behave differently as a result of learning. This shows that there is a very important difference between learning and performance (Qvortrup et al, 2016).

The purpose of this paper is to propose a conceptual framework. This study was initiated to investigate how music can be used to improve students' cognitive memory in learning. It is important to enhance students' learning ability and enhance their learning experience. Expanding research on the effects of sound and music on learning is crucial to filling gaps in existing research.

Literature Review

Cognitive theorists view learning as the acquisition or reorganization of cognitive structures that allow people to process and store information (Letchworth & Everett, 1990). Some of the main principles of cognitive learning theory relevant to this research are that memory is aided by the organization of learning materials and that teachers must provide tools to help learners' brains process information. Most learning theories, especially cognitivism, don't talk about sounds. They talk about active learning techniques and motivational learning content using sophisticated organizers such as problem solving, visual image elaboration, mnemonics, questions, notes, analogies and metaphors (Donovan et al, 1999). They organize the material by breaking it down into meaningful parts and using Concept maps to provide an overview to the learner (Letchworth & Everett, 1990). However, sound has never been identified as a factor influencing students' cognitive performance.

Given the above key principles and implications for education, it is easy to forget that learner motivation is a factor that greatly influences the teaching and learning environment. A student's learning success depends on their motivation as it drives them to reach and achieve their learning goals. Motivation is one of the most important factors for successful teaching.

We hypothesize that motivation is perhaps the most important factor in achieving these goals. Learning is indeed a daunting task as it pushes the human brain to its limits and without motivation it cannot be done effectively. Just because you have students in your class doesn't mean they want to learn. However, highly motivated students are more likely to be prepared and ready to learn, making classes and lectures more enjoyable. However if they are unmotivated, making the classroom experience frustrating and painful. Due to the compulsory nature of modern education, educators cannot take student motivation for granted. As such, you have an important responsibility to ensure that your students are motivated and ready to learn in the classroom. Think about this question. What can be done to improve and create a stimulating learning environment for learners? The purpose of this study is to investigate the effect of music on students' cognitive memory in their classroom.

In the film industry, sound is one of the most influential tools a filmmaker can use to evoke emotion. Experts agreed that a good film needs good sound design to truly wow their audiences. Many successful commercials have relied on its success for power and sound design quality over the years (Lafs, 2022). As an example from the advertising industry, McDonald's audio logo "I'm lovin' it" is well known and recognizable. To be precise, almost 93% of people are exposed and used to it. This is one of the big global campaigns that saw a significant increase in sales since the campaign was first launched and officially put into use (Franus, 2007).

Theories from previous studies on music and its influence on the perception of emotional stimuli by (Hanser & Mark, 2013). They had a theory called the dimensional model of emotion. This theory shows the influence of audio on human emotions. It is now one of Russell's leading models (Russell, 2003) and is widely used in the study of musical emotion. This theory proposed that human emotions have two orthogonal dimensions: arousal and valence, which together form the four quadrants of the emotional space. It is accounted for by the emotional categories used in the dimensional model to describe effects. For example, happiness and excitement correspond to high valence and high arousal. Sadness and depression are examples of many emotional states that exhibit low valence and low arousal. The purpose of this supplement is to review research on how music affects human emotions. It is therefore somewhat similar to the current study (Hanser & Mark, 2013).

Sound also affects human memory. It has a huge impact on the human experience of hearing a particular sound. There are certain memories and emotions that people associate with sounds based on past experiences (Boothby, 2017). Whether it is sound effects, chord arrangements for musical instruments in music. For this reason, sounds are very useful for manipulating human emotions and memories. Certain musical chords are known to reliably provoke emotional responses. Research has shown that sounds produced by major chords are more likely to evoke positive emotions and feelings. On the other hand, the sounds produced by minor chords can evoke negative emotions. In addition, other sounds we hear in our daily lives often represent unique memories and meanings for listeners (Horowitz, 2012). Familiarity with the sound also makes a difference in the emotional impact on the listener. For example, listening to the same song or piece of music multiple times can change its impact instead of hearing new or unfamiliar songs (Sloboda, 1991). Sound is used on many platforms. It manipulates human perception and mood, mostly in music, film, and television. Sound has a huge impact on how people interact with the world. It gives us appropriate social cues and triggers certain feelings and emotions such as: For example, a baby's cry evokes attention or sadness, while a baby's laughter evokes happiness instead. There is an official term for the study of sound known as psychoacoustics, which includes elements of the

psychological and physiological responses to all kinds of sounds, speech and music. Music has the ability to influence and stimulate human emotions (Sloboda, 1991). Some are used as a remedy to reduce stress and promote relaxation (Hanser, 1985). Some music, like lullabies, can be used to lull babies to sleep, while others have a calming effect on pregnant women during labor (Hanser et al, 1983). These studies show that music has tremendous positive effects on human emotions.

As humans, we tend to reach certain emotional states that directly affect our cognitive abilities (Pessoa, 2008). According to one proposed theory, emotion is a cognitive-based state that regulates sub autonomic nervous system function. Emotions provide biological answers to specific questions in multipurpose systems such as transitioning between Plans. Its job is to keep these transitions smooth, maintain them, and communicate them to yourself and others. Transitions occur at key points in plan development when the measure of the plan's success changes. Complex emotions arise at the intersection of social plans and are generated from several basic emotions (O'Connor et al, 1999). Another theory holds that emotions are a type of memory unit that can form associations with random events. Activation of this affective unit aids retrieval of relevant events and prepares emotional themes for use in free association, fantasies, and perceptual taxonomy (Bower, 1981).

Mayer's Cognitive Theory

Mayer's (Mayer, 2014) cognitive theory of multimedia learning is based on a synthesis of Sweller's cognitive load theory (Chandler, 1991), Baddeley's working memory model (Baddeley, 1992), and Paivio's dual coding theory (Paivio & Clark, 2006). These theories argue that perceived information should be presented in a way that makes the most efficient use of the learner's limited working memory resources. In multimedia teaching, where different sources of information such as words need to be incorporated. This cognitive overload can seriously affect learning. This theory provides useful information about why different combinations of media have different effects on learning and comprehension. Auditory/Linguistic Channels and Visual Imagery Channel is Mayer's focus, and he defines multimedia as providing learning materials that integrate both images and words. The definition of multimedia narrows down to two forms, pictures and words, as research in cognitive psychology is more relevant to this definition (Mayer, 2014). Figure 1. is a table explaining Mayer's cognitive theory of multimedia learning.
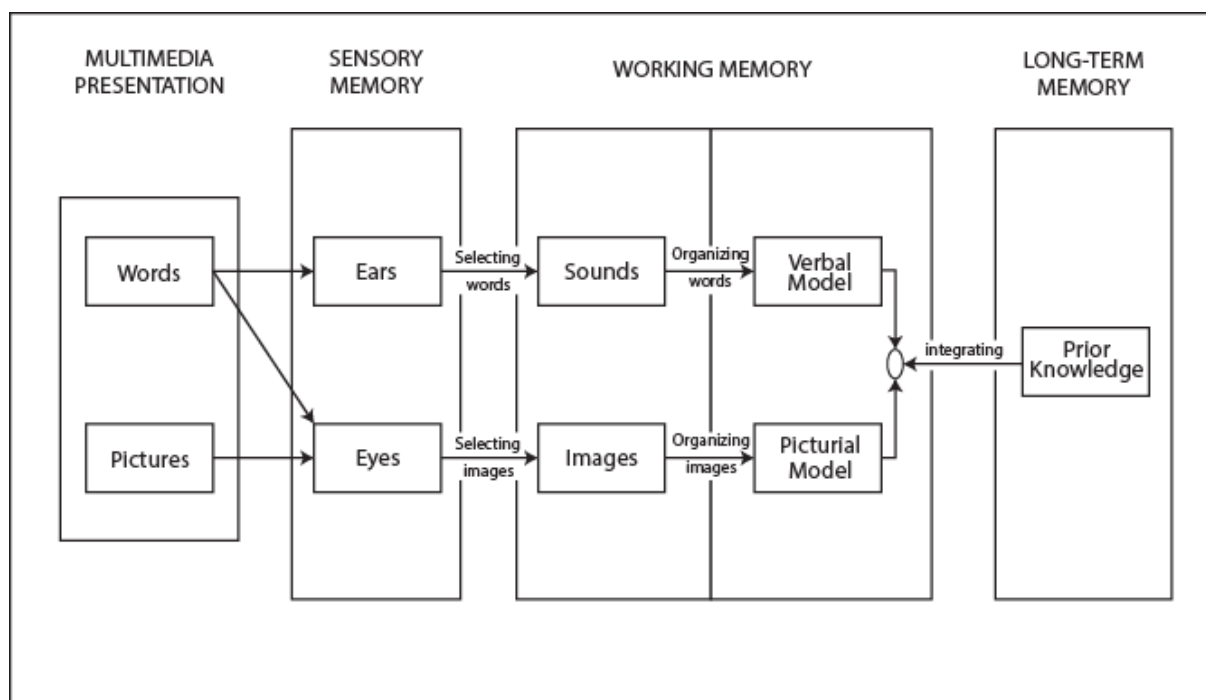
Figure 1: Cognitive Theory of Multimedia Learning by (Mayer, 2014).

This model is based on the three assumptions primarily made by (Mayer, 2014):

i   Visual and auditory experiences and information is processed through separate and distinct information processing channels.

ii   Each information processing channel is limited in its ability to process experience and information.

iii   Processing experience and information in channels is an active process designed to construct coherent mental representations.

Research conducted by Mayer and his team examines the effects and properties of multimedia on human learning. His modality principle states that individuals learn better not only from sight and on-screen text, but also from sight and hearing (Mayer & Moreno, 2003). His theories on multimedia learning have been validated by researchers around the world. Many people used different approaches. For example, a combination of text, speech and graphics (Beacham & Alty, 2006). Another researcher tested the cueing effect modality in the classroom. Adding visual cues to images resulted in higher scores, whereas replacing visual text with spoken text resulted in lower scores (Tabbers et al, 2004).

Conceptual Framework
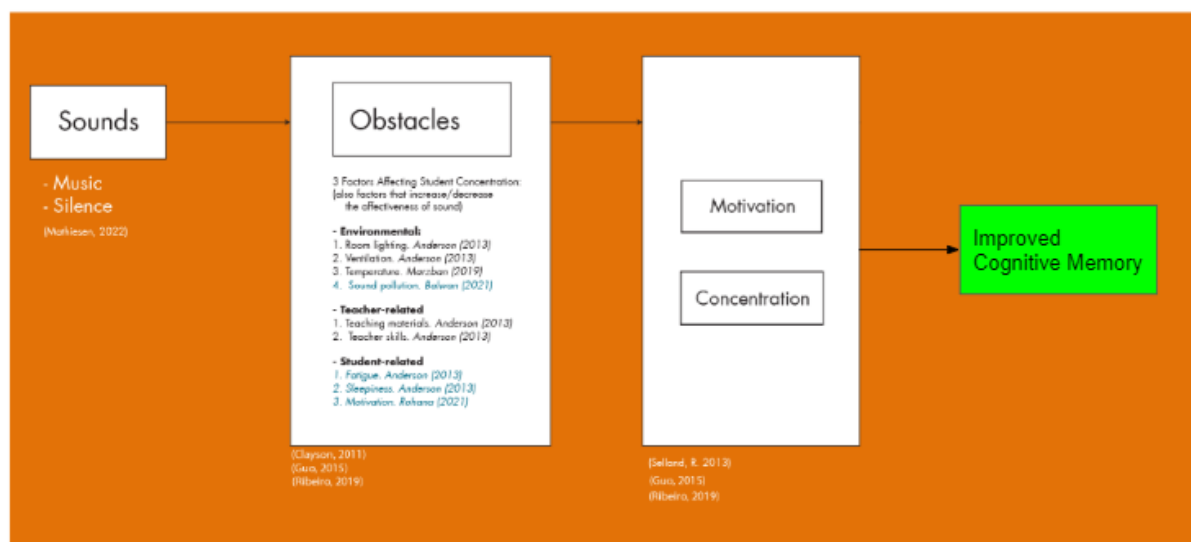
Figure 2: Conceptual Framework of The Relationship between
Sound and Improved Cognitive Memory

This research combines all three-subject matter of music, emotion, and cognition to provide a conceptual framework that if music can positively affect human emotions, it might be possible to keep those emotions deviated from obstacles and distractions to improve the human's cognitive performance such as their motivation, mood, focus and concentration. If this is achieved, the ultimate goal of improving memory may be achieved (Schellenberg et al, 2013).

There are two different types of sounds used. Music, which is known to influence human emotions (Russell, 2003), and silence, which was previously used in other experiments to examine how different sound environments affect meal times, food intake, as well as responses to sonic dining environments (Mathiesen et al, 2022).

The definition of disability here refers to distraction factors that affect a student's ability to concentrate in a learning environment. These impairments are also factors that determine the increasing or decreasing of the music effectiveness used in this experiment. The main factors fall into three categories: environmental, teacher-related, and student-related (Anderson, 1987). However, this study only looked at noise pollution, fatigue, sleepiness, motivation and concentration.

All of these obstacles can be overcome or mitigated through the deliberate use of the right kind of music. Designed to stimulate human cognition and enhance learning and studying experience. One of the music genres we test is also known as lo-fi hip hop or chill hop (Winston & Saywood, 2019). A music format that is uploaded and transmitted over the Internet. To our knowledge, this is not currently being investigated academically (Alemoru, 2018). Another genre that we use is the classical music by Beethoven's "Moonlight Sonata", Vivaldi's "Spring", Chopin's "Nocturne in E Flat Major" (Asprou, 2020). The reason as to why classical music is used for the testing is because it has a good track record in previous experiments done by other researchers.

Under cognitive enhancement, we aim to stimulate students' motivation and concentration, in order to investigate whether this leads to improved memory performance at the end of the experiment (Ford et al, 2019).

Experimental Design Diagram
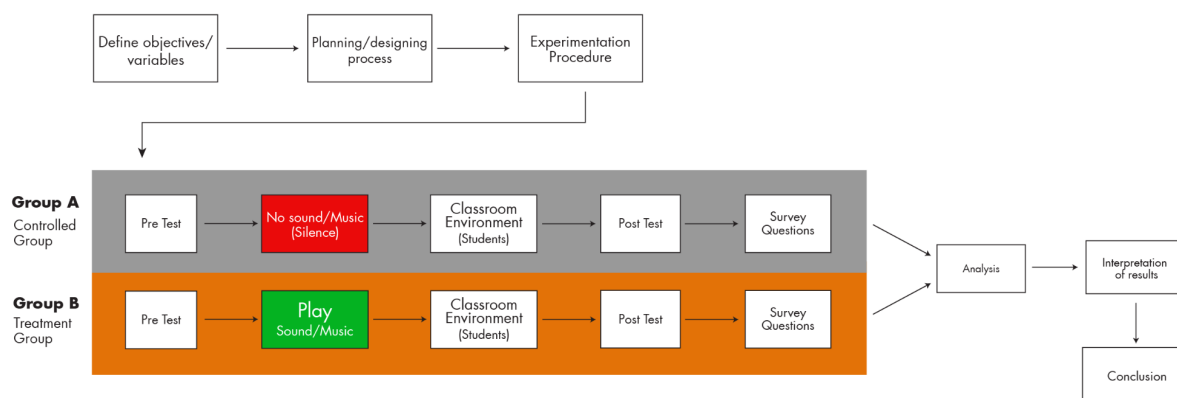
Figure 3: Flow of the experimental design diagram used in conducting experiments on two groups of students.

This experiment involves 50 first year students in The Faculty of Creative Multimedia, MMU, which are divided into two groups, each into a control group and a treatment group. All subjects take their concentration and memory index using the exact same pre-test and post-test, each retrieval of data has a rest interval of one week. In taking the second test, the treatment group worked on the test instrument while listening to a certain type of music played through a monitor speaker in the background that had been prepared and set up properly in the classroom. Then the data obtained are then tested for normality, validity, and reliability, and the correlation and significance are processed using the SPSS application. A similar experiment was conducted by another researcher using binaural beats on school students in Indonesia (Azalia, 2020).

Conclusion

The study, therefore, has provided that music can improve cognitive performance in students and help improve memory in the classroom. A number of studies have shown that listening to music leads to long-term and short-term cognitive improvements. However, this study aims to fill a gap in this research. This has, to my knowledge at the point of executing this research, never been done in the field of education in Malaysia, especially in physical or virtual online classrooms.

Acknowledgement

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Closing the Loop in Design Education: Surviving Disruption in A Digital World

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Abstract
Creative problem-solving, agile and analytical thinking, collaboration and empathy have become essential 21st-century skills required in the current workforce. The upheaval of a global pandemic has accelerated the need to adapt to the changes and disruptions society is facing. The role of future designers is not just to design for the world to be understood better but also to redesign tools and systems that are now obsolete and also to undesign and redesign these systems that no longer facilitate everyday life. Navigating through new paradigms and the 'new normal today and examining issues that are closer to us, as such it becomes critical to negotiate proximities from different angles. Through the proposed framework of 'design with' and 'design for' social innovation, healthcare, circularity and participatory, this study seeks to negotiate to shift proximities with collaborators, participants, artefacts, systems, communities and places. In this paper, increased proximity leads to agency and behaviour change in learning/design making. The case studies draw on the complexities and varied social and environmental challenges in design learning and making. The insights presented will suggest how we can close the proximity as researchers, designers and citizens. The projects presented come from multidisciplinary, multi-lens, hybrid modes, IT-enabled, post-covid world, and how patterns of design processes come together and the eventual design frameworks used can help determine what methods we engage with for future projects.

Keywords: Multidisciplinary, Proximity, Learning Tools, Collaboration

Introduction

Being able to work remotely is the new normal for businesses and employers today. The global pandemic in 2019 has shifted the way we work as well as the way we live. The term 'flexible workspace' allows different forms of mobile offices or on-demand meeting rooms. Employees adjusted their workspace setting according to their own needs and demands that come from their individual work commitments. However, not every industry can afford to 'work from home' such as health care and food companies. With that said, we see the advent of more industries that welcome this flexibility such as Technology driven companies like Meta or e-commerce giants like Amazon, LAZADA, and even traditional advertising companies that encouraged employees to work from home. Adding on to this, the production methods to create content, and conduct business and marketing communications have drastically been adjusted to online platforms, using digital tools like Zoom, Slack or Microsoft Teams. (Ministry of Manpower, 2021) With that said, the design education sector quickly adopted hybrid learning methods and pedagogies and embedded them into the curriculum in order to prepare students to be ready for future employment and abilities against the difficult landscape of the ongoing pandemic.

The pandemic felt like a reset with more streamlined logistics or processes. Businesses are responding through more efficient models and strategies that democratise access to sustainable education and lifestyles, paving the way to scale up ecological solutions. This has become intrinsically connected with consumers constructing sustainable actions and taking up more time with their mental health (Buzasi, 2021) The now purpose-driven consumer is empowered to transform negative emotions related to climate change into hope and action, making efforts to adjust their lifestyle to minimise their negative impact. These changes are evident as we see vast expressions of this on social media. Since everyone has been spending a lot more time at home, the removal concept of distance that was once about the commute, location and time has shifted. Proximity evolved as a concept, given the current pandemic regulations in the office space, conceded distance to have a different meaning (Boland, 2020).

An example was how international travel took a standstill and workflows have been reduced to having more meetings online as well as spending more time connecting to each other digitally. This also meant that we turned to local communities, to build and grow more local resources, and partake in activities that give us an excuse to breathe in the fresh air. One such example is when the 'work from home' mandate came into effect during the lockdown period. While work needs to continue, various methods of gathering data, having meetings and such were conducted in virtual spaces such as Zoom, Miro, Google Space, Kahoot, etc. While they are platforms driven by technology, it also changes the way we use our tools to co-create or collaborate. (Stepanov, 2021) Therefore, Proximity, which may seem like a barrier in the past, provided an opportunity for us to scrutinize what we have locally, drawing us closer to establishing a new human connection, to seek for a different type of collaborative work within a shorter distance and to become closer to a pool of local resources.

Empathy starts at home

For anyone that is based in Singapore, the location and geographical position, the multicultural environment as well as diversity are important considerations of what our students need to know in order to factor relevance into their ideation processes and project deliverables. Design education in Singapore focused on being a part of the international design industry, investing a lot in creating opportunities for students to work on a broader and

global scale. As a strategy, student projects in the Faculty of Design have always demonstrated the importance of cultural diversity, and relevance to topical issues with global currency through their projects' deliverables.

International partnerships, project collaboration and field trips were part of the out-of-class learning that drives softer skills like self-directed learning, picking up a more professional role in translating areas of interest, exploring through complementary research to identify and clearly articulate anticipated design challenges and building a strong portfolio of work. Opportunities to travel or engage with international counterparts empower the development and design processes. With that said, the upheaval of a global pandemic catapulted us to look more closely at our local environment, to both celebrate our own successes and also examine issues that Singaporean designers can focus on and help to solve.

We believe that Design serves as a new agent of literacy and a way of thinking about the 'new normal' that we are experiencing. It is when Design can trigger meaningful change, then it is the most exciting and impactful. (Interaction Design Foundation, 2022) As educators, our role has always been to equip our students with that literacy. It will be their greatest asset not only in the present pandemic but well into the future, no matter what path they pursue.

As we educate the global designers of tomorrow, they should be nimble, creative and inquisitive to solve problems and respond to emerging design issues, dig below the surface for interesting questions and their probable answers. Their work should create impacts of creation despite the erosion of proximity to social and cultural interactions, to lived experiences, to nature, to production, to knowledge experienced online or offline. This paper studies how increased proximity leads to agency and behaviour change and in what forms does this take place in design education? How can this framework be applied to project collaborations that blend online and offline modes of communication through interdisciplinary work?

The objective of paper

Design is ready to contend with societal challenges in that while many complex problems are approached from a technological/technocratic perspective, much of the complexity in today's problems stems from the human domain. Design is a natural bridge to consider contexts and agendas for today's complex challenges (Dorst, 2019).

To generate creative solutions to complex problems that involve multiple stakeholders. One of the defining characteristics of design thinking is the ability to work in cross-functional teams. The challenges that design has to tackle are referred to by scholars like Rittel and Webber as "wicked problems". These are problems that are very difficult to formulate, they do not have right or wrong solutions, they do not have a logical end and are often symptoms of other problems. (Rittel & Webber, 1973) Interdisciplinary, collaborative teamwork shows promise in taming such wicked problems because it advocates taking a systems view which can lead to more holistic solutions.

The cultural shift from "me" to "we" is extending not only to brands and organisations but also continues to transcend to people, places, social environments and such. As reported in the Advertising industry magazine, we see more Millennials taking opportunities to work not only in the areas they want but also in a style they want, by sourcing numerous income

streams that utilise their skills, talents and interests. (Al-Zaidy, 2019) Whether it is in Advertising, Art management or Filmmaking, it will always be a collaborative endeavour. Hence, demonstrating that change requires a collaborative effort. Such multi-hyphenated roles have become common today and designers are often entrusted with increasingly complex challenges. The paper seeks to question what are the tools, methods and materials that can support design researchers in their negotiation of proximities in a project. Although travel today has opened up, how can we maintain the 'glocal[1]' nature of collaborative and participatory design research to continue to exist both online and 'in the field'? The paper aims to break down the concept of proximity. It will collate the ideas of 'Open Design' in order to put forward a proposition for more collaborative and co-creation work to happen between designers and non-designers. Upon this, the review via case studies of past projects to discover commonalities and question how can these inquiries shape the way we think and work in the future.

Literature Review

Much effort has been applied to develop the converging areas of science, engineering, research and innovation. As well as there have been many contributions to interdisciplinary research that focused on barriers to such collaborations and strategies for overcoming these. We want design students to always look at articulations across borders as a common social awareness. The arts and creative industry need to stimulate new paradigms and play a more substantial role in providing vehicles of change. Therefore, design education has to play a transformative role in society. Proximity is crucial to overcoming barriers against interdisciplinarity, (Rekers and Hansen, 2014) given the integration opportunities and innovation, art and design can play a steering role to bring about a new facet to the creative ecosystem. Co-design and co-creation have established a pattern of the design process with designers playing a vital role in facilitating the conversations and discussions to design not just for an individual need but for a community need (Huppatz, 2020, p104).

The WGSN white paper titled "Create Better: innovating towards a sustainable future report 2021" provides insight for businesses and communities to take on vast opportunities that may arise post-pandemic and be certain of risks involved to shift the dichotomies of sustainable practices. The report serves as a toolkit for design industries to thrive in times of transition. Outlining the six pillars at the heart of responsible product development, such as sourcing, design, manufacturing, distribution, consumption and post-consumption. One of the key insights was how the pandemic has increased awareness of the fragility of the globalised system and accelerated a shift in preferences from global and centralised, to local and decentralised. (Buzasi, 2021) Steadily colliding with our concepts of proximity, this also means looking inwards to local communities and sourcing materials internally or thinking about sustainable practices in alignment with local produce or local artisans.

Naohiro Matsumura has a design method called 'Shikake', the Japanese Art of shaping behaviour through design. It was conceived to address and tackle challenges in our homes, our public spaces, and our social interactions through the use of design. For example, how we encourage students to take on design-led approaches that exert influence on us through subtle nudging, rather than direct command. (Matsumura, 2021) This system of thought encourages a particular behaviour without telling its users the primary purpose. Some of Matsumura's

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[1] Glocal - of or relating to the interconnection of global and local issues, factors, etc.: a glocal conference on community development. (Dictonary.com)

examples are symbols of movement in-store to guide shoppers and keep users socially distant; a basketball hoop placed over a trash can to encourage children to tidy up their rooms, or a staircase painted to look like piano keys prompting exercise for better motor skills through play (Matsumura, 2021).

An online article written by Dr McLeod explained that the Zone of Proximal Development (ZPD) was a key construct in Lev Vygotsky's theory of learning and development. Cohesively with collaboration work, as defined by Vygotsky (1978) as *"the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem-solving under adult guidance or in collaboration with more capable peers"* (Vygotsky, 1978, p. 86). ZPD is the space between what a learner can do without assistance and what a learner can do with adult guidance or in collaboration with more capable peers (McLeod, 2019). This succinctly ties in with how this 'assistance' is provided by scaffolding, supportive activities provided by the educator, or a more competent peer. Although Scaffolding introduced by Wood, Bruner and Ross (1976), consists of the activities provided by the educator, or a more competent peer during group work, to support the student as he or she is led through the zone of proximal development (McLeod, 2019).

Research Questions

What role do designers, individuals and communities play in driving adaptation? This question looks outside of systematic, top-down solutions and how disruptive situations set constraints for creative solutions. What do holistic and inclusive approaches look like and how effective/scalable could be? This will enable the examination of projects through interdisciplinary design and find ways to empower learning. Hence, how does the need for adaptation impact design and the role of designers?

Proposed Framework
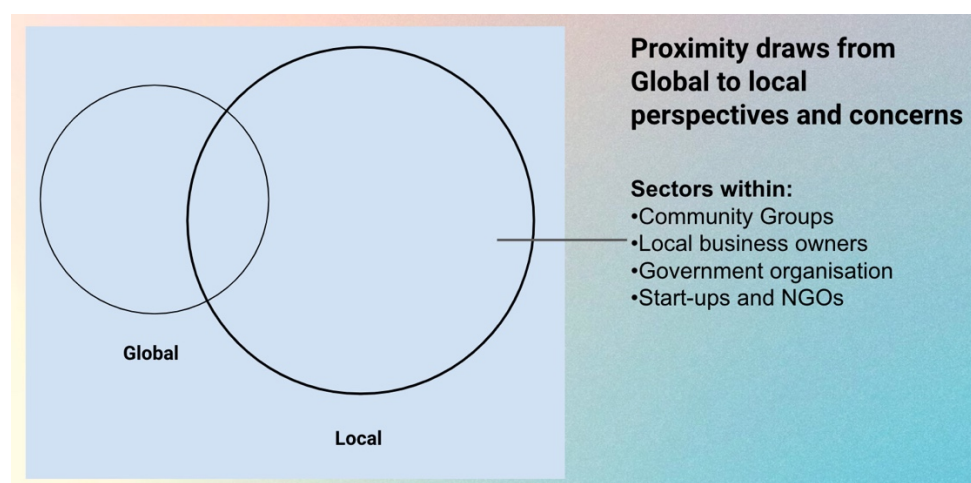
Figure 1: local and global perspectives

Inspired and borrowed from the Gestalt Principles of Proximity, the framework (Figure 1) identifies with the idea of students working in groups to collaborate and co-create the briefs. The methodology also engages with the idea of proximity from global perspectives to local concerns. It is evident from case studies that design problems are non-design and design sectors. These design-related sectors were introduced for students to uncover possible

social/cultural issues that occur in settings that are relevant to the current context. This can be achieved through visual research, news trending, pertinent social and cultural issues, etc. (See Figure 2)
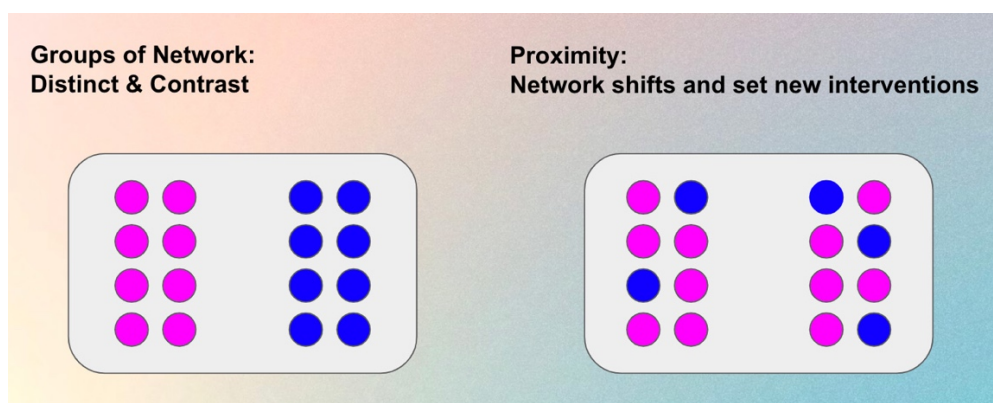
Figure 2: Proximity - new networks

This category sets a criteria list, acting as thematic provocations that can be used to set the tone and objective of the project brief.

From a social innovation perspective:	**From a design futures perspective:**	**From a circularity perspective:**
What does the proximity of citizens to their own systems of living mean for the design of our cities?	How might proximity be used to enquire knowledge about technologies that empower innovative encounters?	How might the proximity of design researchers, brands and citizens to supply chains (and their varied socio-material actors impact) affect their experiences, behaviours and decisions?
Example: How user knowledge from communities empowers urban spaces.	**Example:** How does medical technology impacts patients' medical experience	**Example:** How alignment of systematic processes reduces digital footprints.

Table 1: Criteria list

The Project Brief

How can tools, methods and materials support design researchers in their negotiation of proximities in a project, given the 'glocal' nature of collaborative and participatory design research, both online and 'in the field'? Therefore, the research explores 'proximities' from two perspectives:

- **Methodological enquiry:** we welcome papers from researchers dealing with how to negotiate to shift proximities to collaborators, participants, artefacts, communities and places. What are the challenges and the possible tools, methods and approaches to negotiating (cultural, geographical, disciplinary, linguistic) distance? What is ethical, fair and equitable practice?

- **Outcome-oriented / theoretical inquiry:** we welcome papers which deal with the impacts of creation and/or erosion of proximity to social and cultural interactions, lived experiences, nature, production (supply chains), knowledge (online/in person) and so on. Can increased proximity lead to agency and behaviour change and in what forms does this take place?

We want to develop a cross-cultural experience that fosters collaboration with students and the wider community while converging different design practices:
- An invaluable experience of exchange with participants from different backgrounds and different disciplines
- An opportunity to test theory into practice – real-world experiences that form an important aspect of transferable skills for future careers
- A reflective learning experience that builds a meaningful discourse
- A disruptive learning – breaking down siloed design practices

Guideline for students to use during the creative process

a) Learning experience	b) Acceptable evidence	c) Findings& insights
Online methods: - readings and fact finding - insights analysis	**Physical in-situ methods:** - talking to artisans - conducting photo ethnography against environmental factors	**Phygital methods:** - create their own process and ways of working - combination of online and offline methods
Research and gathering Processes: • Gathering information and visual research • Evidence & projects case studies • Data	**Field work & understanding audience:** • Fieldwork and meeting with actual audience • Site specific assignments	**Design Making and iterations:** • Inquiry, provocations, systems design and visual responses

Table 2: Guideline

Methods: Case Studies (the idea of Proximity)

Proximity can mean the re-consideration of the social spaces around us. Where we can re-evaluate our surroundings to focus on engaging the local communities and yet, connect through technology and possibly other methods such as craft materials or artisans when necessary. What we mean by this examination is how Singapore used the term during the pandemic, 'Social distance', whereby we always have to keep 1 metre apart but still be able to continue to communicate and interact every day. This concept seems to represent an oxymoron, then how can there be distance if what characterizes socialising is the proximity between individuals, and generally living, eating, and working together?

While we collate projects and provide examples to provide a broader perspective of the multi-faceted conjures that defy proximity to deliver positive results and impacts. Some areas of interest presented in Singapore's context, as well as students' projects:

Areas of interest: as suggested to students

Subject Areas	Example:
Eldercare (Ageing Population) • Vulnerable groups • Accessible Health Care • Lifelong Learning • Public Spaces (Infrastructure)	- Age-friendly cities using **Kampung Admiralty (KA)** (a pioneering project of integrated housing cum community for the ageing population) - Technology learning, higher learning without having to sit for exams **(Skills Future)**
Early Childhood • Childcare • Pre-school and foundational years that requires hands-on learning and experience	- **'Proximity of Care' Framework** - Early Interventions centre and special needs - **Reggio Emilia** Inspired Inquiry-based Curriculum for some pre-schools in Singapore
Sustainable Practices: • Vertical Farming: growing own vegetables, due to border closures, and encourage self reliance • National Parks: extending urban spaces to be more inclusive • Upcycling: Sustainable practices for Generation Z.	- Converting carparks into rooftop farming: **Comcorp Singapore** - Gardens for Special Needs children - Sustainable Properties in a Green city and thriving stores like **Stakeout/Loop Garms**

Table 3: Areas of interest

Student Projects: Case study

Created by Gracia Goh in 2021
Not-So-Public Public: Not-So-Public Public is a provocative design project that challenges the politicisation of public space planning in Singapore by highlighting the Singaporean's predominant role as consumer over citizen in society (Goh, 2021).

Created by Png Jun Kiat in 2020
Of Food, Sweat and Tears: A Celebration of Singapore's Hawker Culture: the celebration of Singapore's Hawker Culture using Human-Centered Design as an alternative approach to Promote the Preservation of the Intangible Cultural Heritage (Png, 2020).

The examples above are projects that came about during the pandemic. The stakeholders involved were connected through either technology while there were restrictions within the city. The projects continue to largely focus on the needs of the local community, which once relied upon outsourcing, imports, etc. Our design students are now looking inward within the communities to realise some of these avenues that need to be addressed, international students are providing fresh perspectives to these design-related issues and begin to celebrate the intricacies of what resources have been neglected and can be found internally.
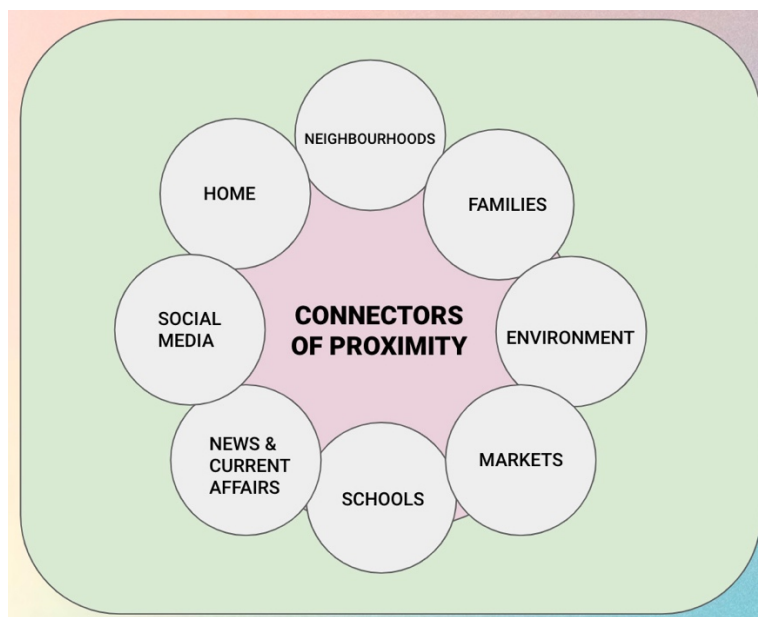
Figure 3: Concepts for Mapping

Figure 3 explains the concepts for mapping. Students to discover what are the tools, methods and materials that can support design researchers in their negotiation of proximities in a project.

Pedagogical changes are when the tutors or educators have to quickly adapt to the given restrictions and accelerated changes. Does the usual design output use a lot more digitally-enhanced methodology and technology? (Consider the experience via manifesto videos, digital publications instead of printed matter, etc.) We have to consider what our role is in the project. (How can we continue to be effective facilitators or being to be peer learners - learning side by side?) Do we act on behalf of the designer, and find different modes of contributions to design? (Group presentation in Zoom, Telegram for group work and collaboration, etc.)

Does this mean that accessibility can be the way to move forward? Accessibility can also refer to a citizen's ability to attain basic services such as health care, education, employment or information or to participate in community or cultural events. In the concept of social design, inclusivity is always a key consideration when designing things of probable solutions. This act of thinking also means that through community cooperatives pivoting to the front, citizens and designers likewise are empowered to identify local issues and generate solutions based on local knowledge.

A key project looks into reviving community spirit in the Singapore Housing void decks through playful and functional design. "Just Let Us Live Lah" is a series of installations created by BA (Hons) Product Design graduand, Evan Tan (Bay, 2021). His project fosters awareness and understanding among residents about Singapore's stay cat population. Many cats live in communal spaces such as void decks and through his designs of a resting stool, a scratching post and a food station, he hopes to raise community spirit and demonstrate how animals and humans can coexist. The positive outcomes of this type of development when combined with appropriate collaboration and follow-up, include greater citizen participation and support.

Conclusion: The 'glocal' nature of collaborative and participatory design research exists both online and 'in the field'

What is the hidden value of Proximity? Given the current pandemic and social distance rules, travel restrictions as well as not being able to leave the house, how have these restrictions provided a different perspective of gathering data (such as open call brief, call for collaborators internationally, etc.) learning, teaching and making? With that said, how can we empower our students to look inward but with an outward view? How can we provide opportunities to scrutinize the locals and form closer links with our immediate sources? As Singapore is not known for having its own natural resources, our imports always come from our neighbouring countries such as Malaysia, Indonesia and Thailand. Based on the thought that Southeast Asia countries have the same root of art, culture and heritage, one example was a project to seek collaborators across South East Asia. Neighbour Programme: The Mixture of Southeast Asian Visual Culture (Wijaya, 2014) was initiated in 2010 by three institutions from Southeast Asia: Singapore, Malaysia, and Thailand; then Indonesia joined them a year later in 2011. These institutions, which specialise in art and design, decided to develop a project about the cultural exchange that aimed to reconnect art and design in the form of dialogue and research as practice. Through this platform, Students as well as design educators are taught by producing design artefacts presented in exhibitions.

During the pandemic, a Design Communication alumni Chua Jia Xiang crucially established the role of design in the fight against Covid 19. Chua is a Senior Service Designer in the Kaizen Office at Tan Tock Seng Hospital (TTSH). With the COVID-19 outbreak, frontline healthcare personnel were wearing personal protective equipment for longer periods than ever. The team saw a lot of photos where doctors and nurses had a lot of marks on their faces due to prolonged usage. This gained media coverage across Singapore, likewise across international media. Chua and his team spoke to ground staff to find out about their needs and their working environment. This paved the working relationship between healthcare professionals and how they can work together with designers to turn ideas and concepts into prototypes (Lasalle, 2020).

The innovation was based on an old prototype of a face shield used during the Severe Acute Respiratory Syndrome (SARS) outbreak in 2003. The team spent two weeks — and over a hundred iterations — to come up with a new design to create something that would be comfortable, safe and easy to wear and remove, as well as cost-effective to produce. The face shields have completed the first phase of user acceptance testing, and are already being rolled out in mass production for use at TTSH in 2020 (Lasalle, 2020).

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A Reflection for Art & Design Learning for Digital Natives

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Abstract

Education cannot be separated from rapid technological advances. One of the new paradigms in education is the use of internet network technology. This also applies to education in art and design in Indonesia. During the pandemic, the acceleration of the digital transformation of universities in this field is trying to adapt. Despite dealing with Generation Z who are part of a digitally literate society, the form of learning design seems to be shifting. Today's technology has changed the method of learning in art and design. The use of technology has become part of the creative process. Currently, they are dealing with changes from the physical form to non-physical, hand drawings into digital drawings, real practice into virtual simulations, access to cloud storage, and exhibition of artworks in virtual spaces seems to be today's normality. Higher education in the creative field is one of the important institutions that will have an impact on the creative industry in developing countries such as Indonesia. Therefore, this phenomenon needs to be explained clearly. By conducting a survey of art and design students with a certain generation age category, literature studies, and interviews this paper attempts to describe how these digital natives respond to today's art and design learning. These findings can be used as initial input for further research in future art and design education.

Keywords: Creative Process, Developing Country, Technology, Generation Z, Virtualisation

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Introduction

Technological interference in the fields of art and design is undeniable. As a tool, the involvement of digital technology has been applied in designing or creating artwork in this field for a long time. Now in the field of art and design, internet technology is also used in lectures. We witness this especially when the progress of the internet reaches its maximum capacity. For example, during the pandemic, we have seen how this ability is tested and has changed how it plays a role in learning, especially in art and design. Now, as students who are generation z, namely the generation called digital natives, technology has become a part of life and has even become an extension of how they carry out all activities. According to researchers this has more or less changed the method of learning and this needs to be studied more deeply so that learning can be in accordance with the current generation.

In Indonesia, the creative sector has become the spotlight in the country's development. Ministry of Tourism and Creative Economy Indonesia led by Mr. Sandiaga Uno in October 2022, stated that in Indonesia the creative sub-sector is important to develop. Seeing the very dynamic development of the creative economy today. In general, the creative economy is an industry that utilizes creativity, talent, and ability to create prosperity and jobs for many people. Potentially, the creative industry is one of the economic commodities that has recently been declining due to the Covid-19 pandemic. Moreover, the potential of natural resources in Indonesia is very large, causing the potential for the creative economy to be easier to develop.

Regarding generation z and its relationship with economic growth, the ministry released statistical data. The creative economy has quite promising potential to support the national economy. The Gross Domestic Product (GDP) of the economy that arises from creative ideas has reached IDR 1,009 trillion in 2017, an increase from the previous year of IDR 922.59 trillion (Network, 2018). With this data, it can be concluded that this generation plays an important role in the country's economic growth, so that progress in education and learning in higher education for this generation is important to explore more deeply.

Digital Natives, people born after 1980, are the children who have grown up in a world surrounded by and using computers, video games, digital music players, video cams, smartphones, and all the other modern technological tools. They are the product of the new culture that has emerged as a result of the aggressive penetration of digital technology and they are all 'native speakers' of the digital language (Kivunja, 2014; M. Prensky, 2001). The learning process undergoes changes that also characterize the generation of learners. Moreover, In the field of art and design, this process creates a new reality between the teacher, the learner, and the work created in a virtual environment. In addition to being used as a tool in creating works, digital technology, and the internet have also changed the way of the creative process for art and design students as digital natives. During the past pandemic, it can be noticed that how unique digital natives were in their creative process.

Unlike general theory courses, art and design use a lot of studio practice-based learning methods. A method that uses a lot of practical activities in studio classes that require direct face-to-face supervision of teachers to students, or between students. This method has long been applied in the creative field (Boling et al., 2016). When we move to technological advances in learning, of course, this affects the process in a virtual studio (Agrawal, 2009). In the last decade, we can see many students using this advanced technological tool. For example the development of a learning management system (LMS) in higher education,

teleconference applications which are increasingly commonly used for lecturing, use of web-based applications for design and collaboration, storage of learning data in the cloud, virtual presentations, use of AR and VR, and also the presentation of works in form of virtual exhibitions. The focus of this research is to explore how art and design students learn in this virtual studio environment, and how these conditions affect their creative process.

Literature Review

Digital Natives

Many researchers give terms and discussions for generations that are related to digital technology. Some call it the net generation (Tapscott, 2008), digital natives and the previous generation are called the digital immigrant's (M. R. Prensky, 2010), or in general, we often hear the term Z generation (Howell, 2012), or as simple as the digital generation (Jukes et al., 2010), or the popular term in Asia as the strawberry generation (Schott, 2008)which is more related to social issues. In this study, the researcher took the term put forward by Prensky which has a lot to do with the discussion of learning and education.

The term Digital Natives popularized by Marc Prensky (2001) said that this generation has its uniqueness from the previous generation. The most obvious difference from the previous generation is the difference in the way of thinking and how to use the mind to process information. Prensky also mentioned some of the most striking characteristics, namely their relation to technology, that they can adapt quickly, are highly dependent, and also really enjoy the online environment. In Indonesia, the population of Generation Z ranks first, which is 27.94%. This also builds the condition of the Indonesian economy, that this generation is the biggest actor and consumer.

The characteristic concept of digital natives is the most obvious difference from the previous generation is the difference in the way of thinking and how to use the mind to process information. The main characteristics are; Active in expressing self-identity; having broad insight; loving freedom; wanting to have control; being dependent on technology; enjoying the online environment; having the ability to adapt to new technologies & multitasking ability (M. R. Prensky, 2010). This characteristic has been widely discussed by several researchers. Especially regarding behavior towards the use of digital technology, technical skill level, and ability to concentrate and multitask in the online learning (Martín et al., 2021; Palfrey & Gasser, 2011). However, there is also research that states that some research results show that even some students still need some conditions to be carried out offline. And interestingly the students' perceptions of this virtual learning environment show different results regarding the culture and technological development of their country (Tóth et al., 2022). This study intends to reveal this in the background of developing countries in Indonesia.

Art & Design Studio-Based Learning

Studio-based learning focuses on learning through action and developing a creative process, design, performance, or product that individuals can assess. "Studio" is usually a dedicated classroom or performance space, but it can also be a social setting within a community. Generally, students are given practical assignments and projects that can be solved individually or collectively(Park, 2011). Students share their solutions and development process. The studio is a space for students and teachers to interact based on each other's traditional principles of supervision and consultation. This method has not significantly

changed from its historical roots in models such as the Ecole Des Beaux Arts and the Bauhaus in 18th century (Broadfoot & Bennett, 2003). It is considered similar to studio-based Learning pedagogy (SBL) is an educational method with a distinctive student-centered approach. In the 21st century, the studio space is still at the core of teaching and learning about art and design programs (Boling et al., 2016). Creative fields, which are mostly art and design, also trigger the growth of art and design education, especially at the university level. Colleges of art and design apply most of their methods using studio-based learning.

Educators typically use studio-based learning in architecture, design, engineering, and the creative and performing arts. Although they vary in form, studio-based learning has always focused on learning through action and developing creative processes and/or assessable designs, performances, or products. The evaluation of creativity is not simple, especially because of the diverse interpretations of creativity, but also because of the highly personal ways in which creativity is experienced and judged. Studio-based assessments are suitable when graduate outcomes include the ability to design and develop creative products. A studio is usually a dedicated classroom, design, or performance space (Agrawal, 2009).

Creative Process

Cognitive psychologists define creativity as a convergence of fundamental cognitive processes, core domain knowledge, and environmental, personal, and motivational factors in which an individual is seen as novel and fit for a specific purpose. The result makes it possible to produce an object or action (Saunders & Ward, 2009).To be creative means we have the flexibility of mind. Over the years it has been proven that those who are more creative than most people are usually free-spirited, less restrained, and in control, but love spontaneity and prefer to express their feelings and emotions (M. A. Runco, 1991; Starko, 2021).

The discussion about elements of the creative process was first introduced by (M. Runco, 2004). The elements involved are Person, Process, Product & pressure. But this research takes a more recent and detailed theory about the elements that influence the creative process, specifically in the fields of art, architecture, and design (Fakhra & Gregory, 2010). In Figure 1 the important elements in a creative process are the source of creativity, quality characteristics, strategies, influential factors, and individual or group working modes. This element was used as a variable in this research.
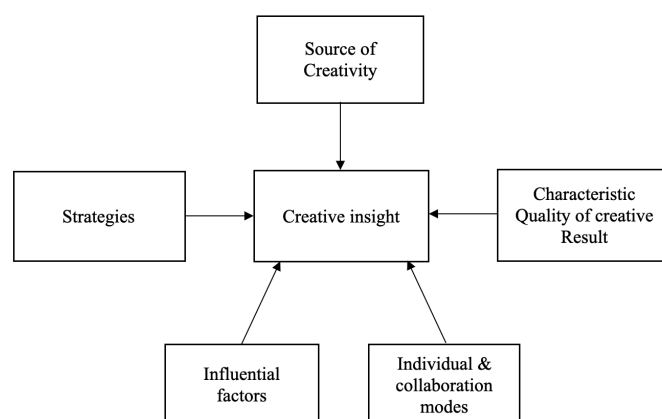
Figure 1: Diagram adaptation of creative process influence elements.
(Source: Fakhra & Gregory, 2010.)

In this study, the creative process is also seen from the most common stages proposed by physicist Herman von Helmholtz which was later refined by Graham Wallas. The stages of the creative process are Preparation, Incubation, Illumination, Verification, and then Evaluation and Elaboration. The preparation is a phase in which the problem is considered in all directions; the incubation is a phase that much unconscious mental exploration took place; the illumination is an emerging insight from the deeper layers of the mind and permeates consciousness, often in dramatic ways; the verification is a part that critical thinking and aesthetic judgment to refine the work and communicate its value to others; the evaluation is a phase that the ideas are critically questioned and weighed against other solutions. Either feedback, another research to test ideas, or compare to the original problem to work as a solution; the elaboration is the final stage of the creative process where the work takes place. This final stage of the creative process involves fine-tuning or perfecting an idea, bringing it to life, and sharing it (Sadler-Smith, 2015).
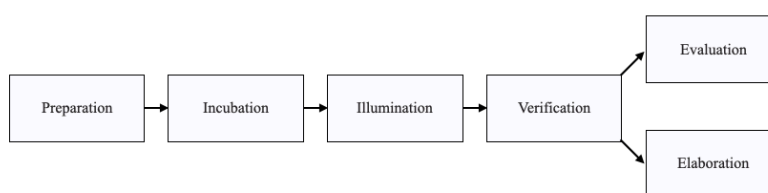
Figure 2: Adaptation of creative process stages by Graham Wallas.
(Source: Sadler-Smith, 2015.)

Method

Case Study & Surveys

This descriptive study uses a case study from the Faculty of Art and Design at a university in Bandung, Indonesia. The subject of research is students majoring in practical art and design program. Students typically work on projects in physical classes using a variety of assistive tools, both manual and digital. Because all learning activities take place online, a student's creative process relies heavily on on-screen instructions and communication via conference calls, learning applications, and group chat messaging. Specifically, this research focused on the process of student activities conducted online in one semester. For this study, research data was collected from 107 students from five different art and design programs. At the time this survey was conducted, the average age of students born in 2003 and 2004 was between 18 and 21, so the research topic was included in a Gen Z category. It consisted of 28 males and 79 females.

The initial research method was carried out by distributing a Likert survey which refers to variables related to the creative process elements and the stages, which are the source of creativity, quality characteristics, strategies, influential factors, and individual working modes. Then the online Likert scale questionnaire was distributed using the Microsoft Form application. From our findings, we processed the data by displaying the score results using Microsoft Excel so that the data could be analyzed as a simple graph. Once the descriptive data have been collected, the next step is to further explore the findings of the research analysis through a semi-structured interview process with five students (3 male, 2 male) representative of the research topic. From the results of the interviews, the researchers then conducted a literature study related to digital natives' characteristics and creative processes.

This research has several limitations. The first limitation is the number of samples. The participants who took part in the survey were not the total student body of students in the whole art and design department. Then the aspects that become variables in the study are only seen from the creative process elements and stages theory which the researchers selected from several previous research findings. So that the possibility of a more detailed variable aspect can be carried out for further research.

Discussion

The survey was conducted on 107 Art and Design students. From the survey, it is known that the respondents came from different study programs, namely Visual Communication Design as much as 52%, Interior Design 23%, Fashion Design 17%, Fine Arts 5%, and Architecture as much as 3%. Most of the respondents are aged 18 & 19 years and also most of them are women, which is as much as 74%.

Internet Source of Creativity

The first variable that was asked of the respondents is the source of creativity, in this survey, the respondents were asked for their agreement regarding their perceptions of the creative process in the studio and also regarding the inspiration they found in the process. In this variable, involvement in technology media use is also included. From the results, it is known that it is clear that the use of internet technology media plays a very important role in the process, they use the internet to get material resources to do the assignment. But from these results, it is also seen that discussing ideas through online media is the least popular choice among students (Fig.3). This happens very often in the online learning process in all fields. The "read-only" student is a student who participates in the learning process but tends to be passive (Nagel et al., 2009). This is because online learning media allows a person to become invisible. The lack of student roles in low-communication projects and activities naturally makes students reluctant to participate in discussions.
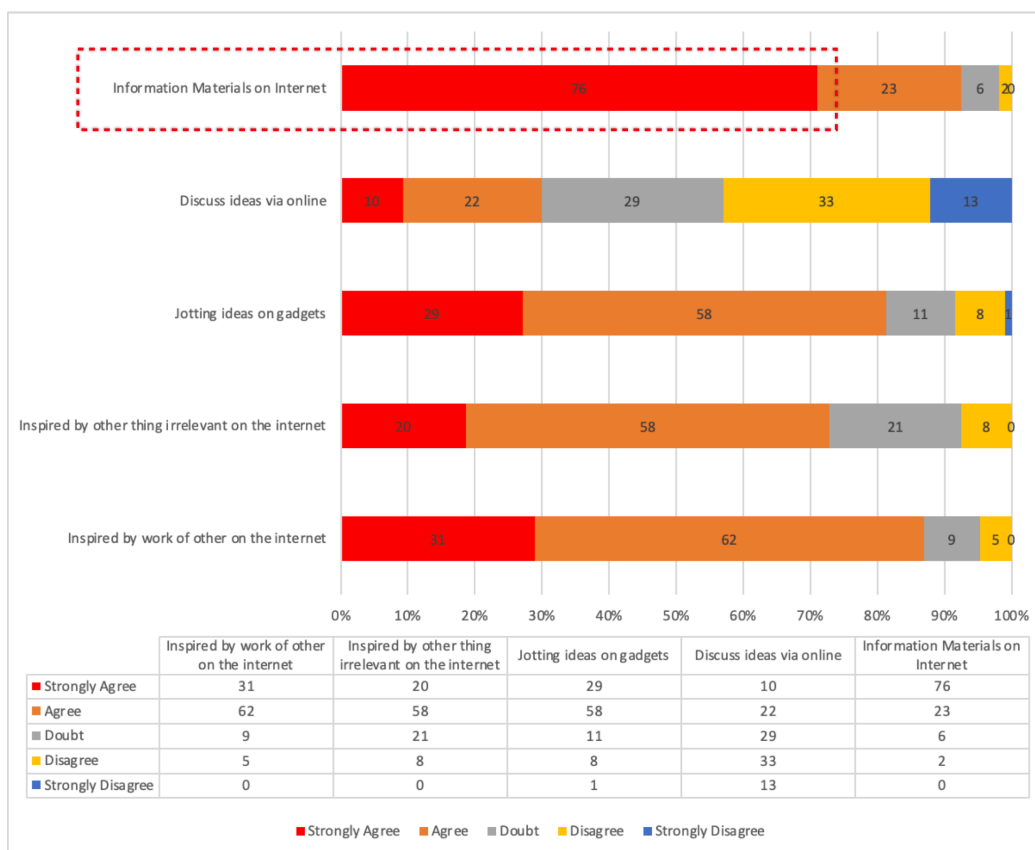
Figure 3: Survey results regarding sources in the process of student creativity.

From the results, it is also found that students prefer internet sources that categorize as visual reference types such as Pinterest or similar, not video or text media as much as 79 scores. Similar to websites for visual reference, Pinterest or similar websites are social media that are used to upload photos and provide photo or image searches to make them into digital pinboards. Websites like this have been very popular since 2010 and are now widely used in creative industries as well as education. Apart from the function of social media, platforms like this make it easier for students to find inspiration or related content. Pinterest in particular is unique in its visual discovery system, where users can look for inspiration using keywords or by detected objects (Zhai et al., 2017). It turns out that this makes it easier and faster for art and design students to find inspiration to do their assignments. Searching through platforms like this replaces the process of making mood boards that students usually do by searching for text sources, now it can be done as easily as entering keywords, concepts or similar objects with an AI search.

Stages of Creative Process

In the stages of the creative process, 4 important phases were specifically taken in this study, from these results it can be seen that the use of internet / technological media is concentrated in the first phase, namely the preparation phase (Fig.4). In this stage students usually collect material and references to work. This shows that technological interference at other stages such as incubation, illumination and verification is smaller. Students still rely on several processes that use their hands, traditional drawing tools, and processes that are carried out without an internet connection. This was related to the next survey about the strategy they do for the process. For the strategic aspect that students do when making works, they prefer their work to look more unique and different from the others. They answered with a score of 42 for

strongly agree and a score of 53 for agree, compared with their answer for experimenting, gaining insight or exploring & developing works. This means that they stop using the internet source of media for other stages so that their works will expected to be more unique in its own way.

	Phase 1 (Preparation)	Phase 2 (Incubation)	Phase 3 (Illumination)	Phase 4 (Verification)
■ Strongly Agree	50	30	16	16
■ Agree	52	51	57	47
▦ Doubt	4	22	23	31
■ Disagree	1	4	11	11
■ Strongly Disagree	0	0	0	2
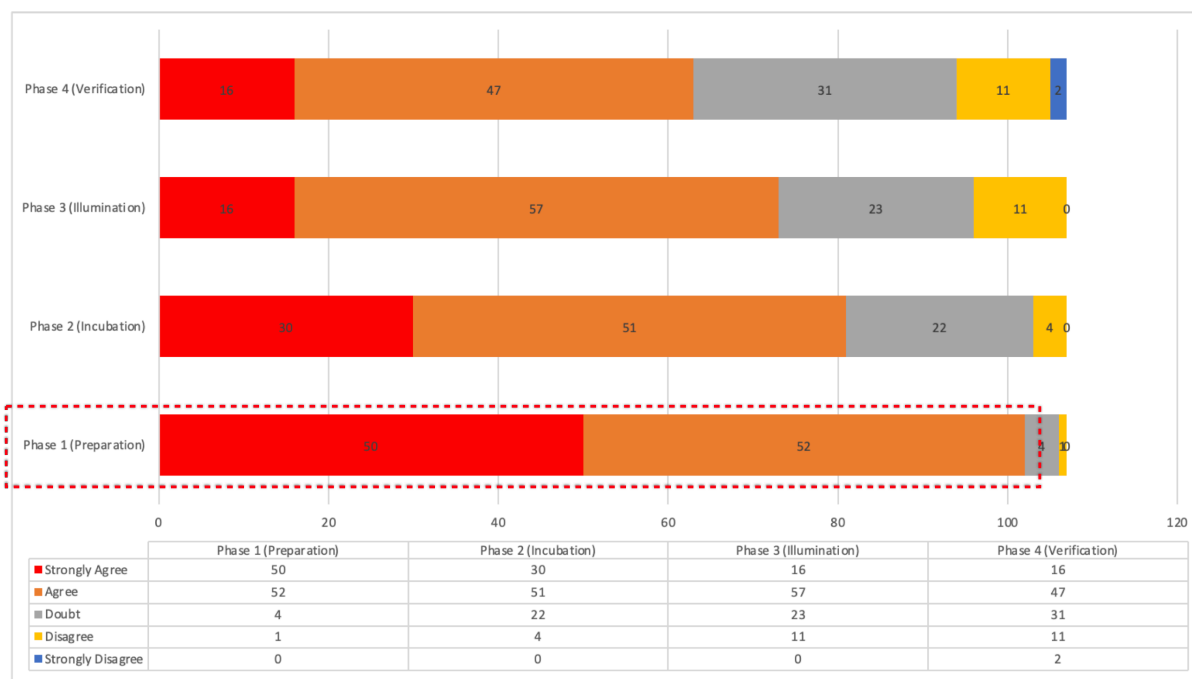
Figure 4: Survey results regarding creative process stages.

Lines of Communication

Even though communication channels are getting easier and more accommodating, it turns out that many students prefer to meet directly with lecturers to supervise their assignments. In the working group modes, students also choose to communicate with their group mates directly or face to face (Fig.5). from the interview, the reason is that by meeting face to face they feel connected and fair for groups because all components of the group are working. By meeting face to-face physically and not on the screen, participation will be more pronounced. This was connected to the answer for the Modes of Working, if students are faced with a project or assignment, the first choice of modes is to do it alone rather than to work on it in a group. It can be seen that the characteristics of these students prefer individual work. they say that by working alone, they can easily anticipate things that will happen, related to documents or things in the process of work. It would be a waste of time if they have to make contact with group mates.
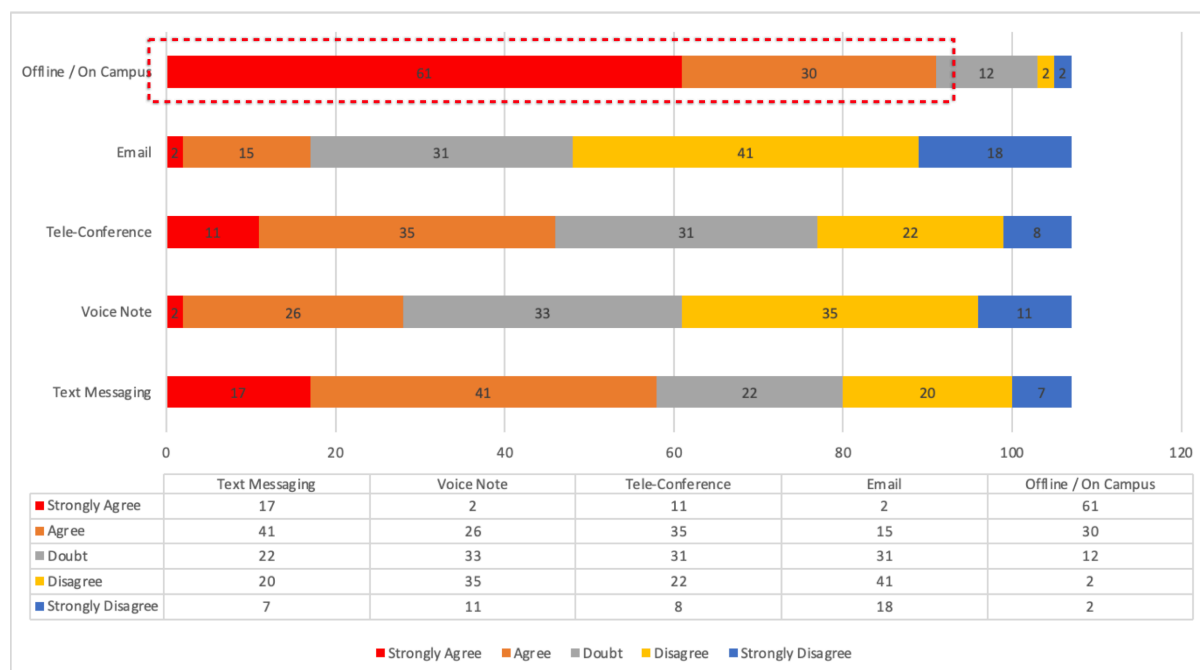
Figure 5: Survey results regarding lines of communication.

Influential Factor

As it has been predicted that a fast internet connection becomes an influencing factor in the process of learning, but also becomes the aspect for them being more creative (Fig.6). In this survey, students were asked about motivation and what factors influence the creative process in carrying out assignments. There are two answers that stand out and get a high score, namely the internet connection and also the people in the surrounding environment. In the process of doing assignments, students feel that an internet connection is very important for the smooth running of assignments, including finding materials, working in document files that are connected to cloud storage, and also connecting with their friends via group messages. They admit, very often their lack of motivation cause due to technical problems in the network. In the interview they also said that the biggest difference when learning in an online environment is the loss of support from friends who motivate or trigger their inspiration in doing assignments. They prefer to do their own thing, but the isolation in their rooms while online doesn't help much either.
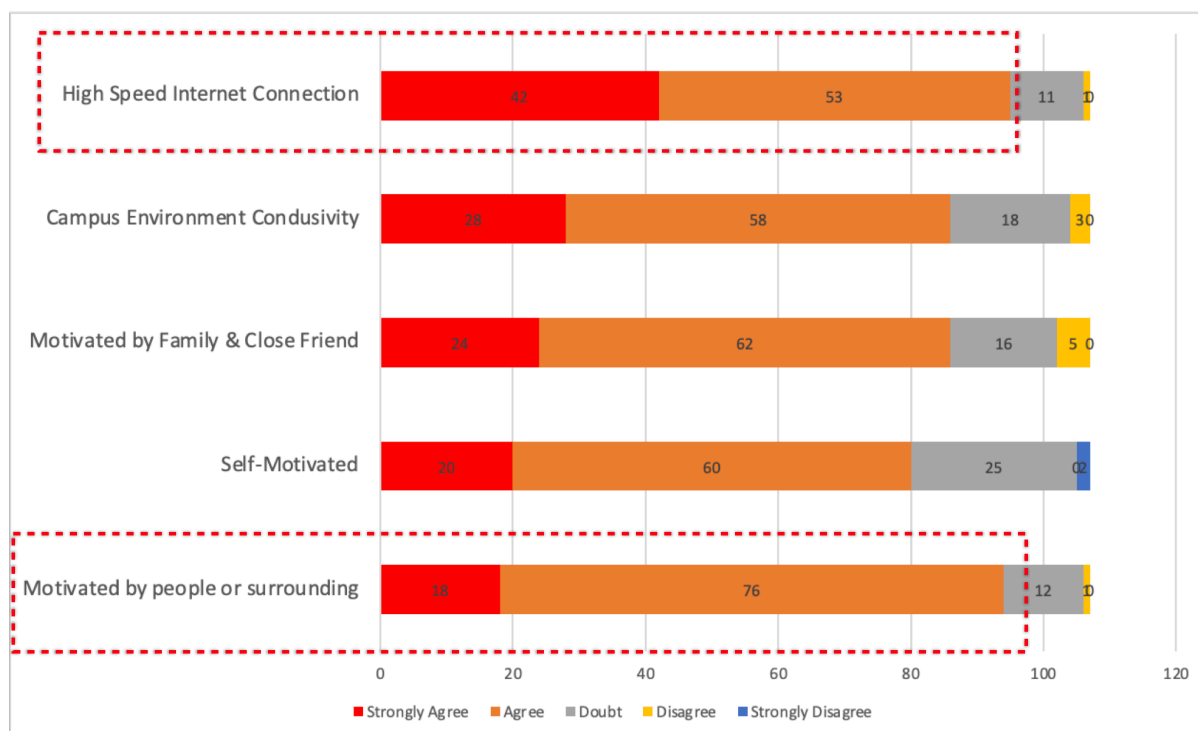
Figure 6: Survey results regarding influencial factor in working process & output.

Working Process & Output

From the survey results, students prefer to do their assignments digitally, even though manual steps in the form of hand-drawing sketches also need to be done. From the interviews, it seems that they have the perception that digital skills are more important because according to them nowadays the output of art and design is more digital. From the aspect of dependence on technology, this survey shows that working hours with computers are still considered balanced, namely 5 hours a day. Regarding multitasking, it turns out that they don't want and sometimes are unable to multitask in this learning process. Then, if you look at the number of tabs/windows that are open simultaneously, it's still at the middle level, namely 4 to 6 tabs/windows. Likewise with opening the application, it is still relatively small (Fig.7). After being confirmed through interviews, they explained that the number of open tabs or applications distracted them from their work assignments. Apart from that, the reason is that some of them cannot afford to have a computer capacity that can open many applications simultaneously. The result from process-reflectiveness surveys emerges as one of the qualities of creative results that mirrors the creative process through which it is conceived. From the results, it can be seen that the high score is in originality and effort. This means that in the process of working, students uphold the value of effort and the originality of their work.
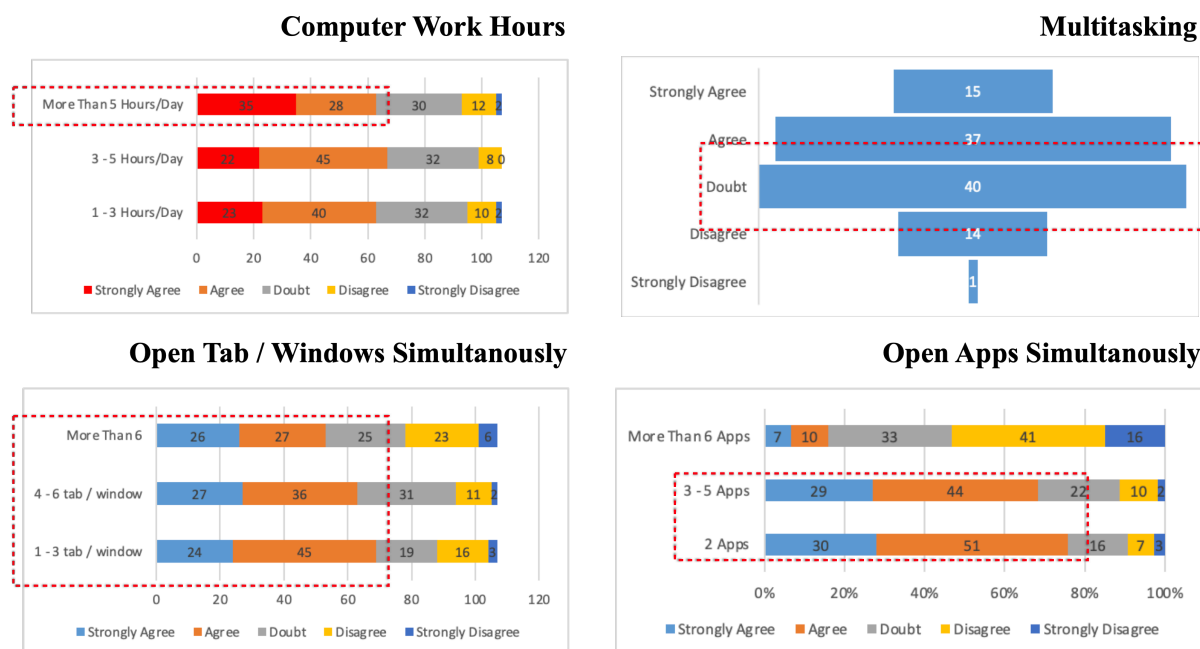
Figure 7: Survey results regarding technology dependency.

Findings

In the process of learning in this study, technological media is indeed used in every stage, but it is still done proportionally, especially for the early stages of developing work ideas. Students work with art, skills, techniques, and processes to develop their knowledge and use materials while exploring different forms, styles, and contexts. Students also learn to critically reflect on their own experiences and reactions to the other work they found in the internet to develop their artistic knowledge. They learn to express and communicate increasingly in a different experience. In this new learning environment, they discover new ways to present and express their observations, ideas, and imagination. Students develop an understanding of knowledge at every stage of the creative process including observing, discussing, and evaluating the characteristics of artworks. They are looking for a web-based application or tool that fits their purpose at each stage, here too they need to adapt to the tool.

With an online learning environment, they prefer to meet in person with lecturers for supervision and also discuss with group mates, this shows that the level of interpersonal engagement is still considered important in their work. Working individually is a picture of how they want control over what they do. Although they can do it in groups there are some things they choose to do it individually. The virtual studio space cannot be fully accommodated online, there is a loss of communication and engagement between lecturers and students and also between the students themselves and this greatly affects the results of the work. this is also related to a reflection practice, a term coined by Schön (1983) (Visser, 2010), is an important part of this type of design education because it is a dialogue between thought and action that helps students become more competent. Reflective practice is a working and learning method in continuous professional development that consists of "behavioral reflection" in which practitioners reconstruct their writing experience, consider its meaning, identify actions, and act.

Conclusion

With changes in the learning process mediated by technology, there will also be changes in the creative process of students working. Meaningful engagement theories that state students who are intellectually, socially, and behaviorally involved and engaged lead to improved learning (Kearsley & Shneiderman, 1998) in learning activities through interaction with others are still relevant in this virtual studio situation.

This situation leads to autonomous learning, defined as the ability of learners to direct their learning. Autonomous learning is a complex, multi-layered structure. It can be defined as the learner's ability to direct his or her learning, which means taking responsibility for decisions related to various aspects of the learning process (Derrick et al., 2005). But above all, autonomous learning implies critical thinking, planning and evaluation of learning, and reflection, a conscious effort on the part of the learner to continuously monitor the learning process from beginning to end.

In the field of art and design, there is a uniqueness in the learning process, especially in how to create ideas and artworks. The learning process will always change according to the generation, but the creative process must be reviewed in more in-depth research because it is related to how a higher education institution runs its curriculum. With the uniqueness of the current generation, it must also be reviewed how this becomes a cultural transformation. By considering the many things related to methods and changes in learning experience from generation to generation, research in the field of art and design also needs to look at the development of the field itself. Ideally learning methods can adapt to the times, but can also create new learning innovations for this field.

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Insights Into Contextual Factors Related to Social Emotional Learning (SEL) in UAE Public Schools

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Abstract

In the UAE, there is a recognized need to boost Social Emotional Learning (SEL) skills in students, yet there remains a gap between that desire and the knowledge held by decision-makers. Although the Ministry of Education is dedicated to uncovering current SEL competencies, there have been few studies conducted in SEL that relate to the UAE context. The goal of this research is enabling factors related to SEL skills in the UAE to gain an insight to understand contextual factors in relation to student learning behavior and academic performance. Adapted from the OECD Survey on Social and Emotional Skills Contextual Questionnaire, UAE public school students from grades 5 to 12 completed a survey to gather a preliminary understanding on student academic achievement, active citizenship and civic participation, social connectedness, health, quality of life, and behavior/conduct. The data was taken from the students' responses to the survey and analyzed along with their academic performance on an education technology platform. The m findings from the study highlight an inverse correlation between general student wellbeing, school-related stressors, and academic performance, most notably test anxiety. These findings showcase how improved stress-resistance and other SEL skills in students can help mitigate the profound impact school-related stress has on students outside the classroom. Understanding key contextual factors for UAE students will be useful to design, develop, and implement school interventions in SEL competencies to boost UAE students' abilities in these skills.

Keywords: UAE K12 Public School, OECD Survey on Social Emotional Skills (SSES), Contextual Factors for SEL, Social Emotional Learning (SEL)

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Introduction

Across the globe, the education field is turning to Social Emotional Learning (SEL) skills to help students become well-rounded and emotionally mature individuals across school, work, and their personal lives. SEL is a process that helps all people manage their emotions, achieve life goals, establish and maintain healthy relationships, and show empathy for those around them (CASEL, 2022), as well as "encompass behavioral dispositions, internal states, approaches to tasks, and management and control of behavior and feelings" (OECD, 2021). For disadvantaged students, gaining strong SEL skills is increasingly important to help mitigate potential impacts on academic performance, as "social and emotional skills play an important role in the development of children and adolescents and, combined with academic achievement and cognitive skills, represent a holistic set of skills essential for success at school and later life" (OECD, 2021). Contextual factors such as lower socioeconomic status, an unstable home life, asylum seekers and immigrants, and other vulnerabilities mean that students may experience a greater impact on their academic achievement and are more prone to falling behind their peers (Banerjee, 2016). Social Emotional Learning skills can help these students and mitigate these contextual factors by allowing them to better manage and regulate their emotions, further develop their perseverance and stress regulation skills, improve their ability to effectively collaborate with their peers, and successfully set and strive towards academic goals (Ragozzino et al., 2003). Even further, a UK study found that by introducing the Promoting Alternative Thinking Strategies (PATHS) curriculum, which promotes self-control, empathy, positive self-esteem, and interpersonal skills in preschool and elementary aged children, students were predicted to experience both positive developmental outcomes and improved academic performance through participation in the program (Panayiotou et al., 2019). The PATHS school-based SEL intervention program found that SEL skills and competencies "allow children…to sustain relationships, recover in the face of failure, regulate emotions and stress, seek out educational opportunities, make responsible decisions, and identify with prosocial peer groups," which can then mitigate the potentially detrimental effects that come from poor emotion regulation and behaviors that may pose a risk to students' academic achievement (Panayiotou et al., 2019). As fostering SEL skills in students is rising in importance in schools around the world, the United Arab Emirates (UAE) recognized the importance of this trend and is working towards introducing students to SEL skills to better help students keep pace with their global peers.

The UAE has been striving towards raising the standard of education in the country for several years, with SEL being just one of many competencies the government is hoping to instill in the country's students (UAE Government Portal, 2021). The need to understand and enhance SEL competencies in the country comes from current educational issues recognized by the government and its partners (Dubai Cares, 2022), as well as seen in field observations completed by this research team: a notable gender performance gap (Ridge, 2009), pervasive behavioral issues in male students (Tantawy, 2021), and more. As of now, there has yet to be in-school SEL intervention programs introduced in UAE public schools, although the need for it is well-documented as it is believed that Arab schools in particular could benefit from the introduction of SEL programming (Rocha, 2019). However, in other countries around the world, SEL school interventions are thriving, and their students along with them. Finland in particular is noted for having found success in introducing SEL skills into the classroom, where education policies are ensuring the children's SEL skills are being nurtured both in school and in society as a whole (Nakamura, 2019). Finland's SEL curriculum is introduced in primary school and continues on throughout a student's academic career, focusing on seven transversal competencies: thinking and learning to learn; cultural competence,

interaction, and expression; taking care of oneself and others, managing daily life activities, safety; multiliteracy; ICT competence; competence for the world of work, entrepreneurship; and participation and influence, building the sustainable future (Finnish National Board of Education, 2016; Wilkins & Corrigan, 2019). The Finnish curriculum appears to be showing positive results already, with findings from the OECD Survey on Social and Emotional Skills (SSES) indicating that 10- and 15-year-old students who have greater SEL competency in intellectual curiosity, persistence, assertiveness, and trust of others perform more strongly in reading, mathematics, and the arts (OECD, 2021). These findings highlight the positive impact SEL programming can have on students, especially when taking into account the contextual factors that set a backdrop for how students approach challenges in both the classroom and in their personal lives. Students in the UAE have the potential to experience similar benefits from improved Social Emotional Learning skills and a better understanding of the specific contextual factors that relate to these students, in particular, is an important first step.

Objectives and Research Questions

The purpose of this research is to better understand the contextual factors related to SEL skills in the UAE in order to gain an insight into their significance in relation to student learning behavior and academic performance.

This was formulated through the following research questions:

Research Question One: Is there a relationship between school-related stressors (i.e. test anxiety and education expectations) and student overall wellbeing (i.e. life satisfaction and personal wellbeing) and how do such relationships vary by grade level and gender?

Research Question Two: What is the relationship between school-related stressors (i.e. test anxiety and education expectations) and students' academic performance and how do such relationships vary by grade level and gender?

Methodology

In order to answer the above research questions, we used the OECD Contextual Factors Questionnaire, which is one section of the OECD Survey on Social Emotional Skills (2021) and was adapted to better reflect cultural sensitivities relevant to the region. The purpose of this survey was to gain a deeper understanding of the contextual factors that impact students' lives both in and out of the classroom.

Data Description

The survey was provided to public school students in grades 5 to 12 via Survey Monkey and was completed by 1,835 students from all UAE emirates. Questions were primarily closed-ended and consisted of 4-point or 5-point Likert scales. There was a 70.73% (1298/1835) overall response rate to the survey and approvals were obtained from school principals and local education governing agencies before implementation. The survey contained 28 multiple choice questions, was administered bilingually in both Arabic and English, and looked at 25 contextual factors across 6 main areas: student academic achievement, active citizenship and civic participation, social connectedness, health, quality of life, and behavior/conduct. The two main areas of focus for this analysis are school-related stressors and student overall

wellbeing. School-related stressors are factors that originate or are mainly related to a student's schooling and are potentially impactful towards their academic learning, such as their school environment, school-related anxiety, and educational self-efficacy. Student overall wellbeing relates to a student's happiness with their life, health, and safety. We categorize the contextual factors related to school-related stressors to be test anxiety and education expectations, while the contextual factors for student overall wellbeing are life satisfaction and personal wellbeing. An example of survey questions for school-related stressors include "Even if I am well prepared for a test I feel very anxious" and "It seems that students are competing with each other." Examples of survey questions for student overall wellbeing include "Overall, how satisfied are you with your life as a whole these days?" and "My daily life has been filled with things that interest me."

Student academic performance data is extracted from the Alef Platform[1]. Specifically, student interim assessment data is utilized from students in grades 5 through 12 by averaging scores across the four core subjects: mathematics, science, English, and Arabic. On the Alef Platform, an interim assessment is a short test students take at regular intervals throughout a course or academic program. It is typically used to monitor a student's progress and identify areas where they may need additional support or instruction and are often shorter and less comprehensive than end-of-year exams.

In this analysis, Kendall's Tau-B coefficient was computed to measure the association between two ordinal variables. This non-parametric technique is used to quantify the strength, direction and significance of the relationship between two variables, and can be used to assess whether one variable is a good predictor of the other. As a result of a different scale being used in Kendall Tau-B correlation, the correlation strength tends to be similar to or slightly lower than that of Spearman's correlation (Field, 2013). In this study, the relationship was considered statistically significant if the p-value was less than 0.05.

Findings and Discussion

Research Question One Results

For the first research question, results in Table 1 show that there is a statistically significant negative correlation between test anxiety and personal wellbeing (τ = -0.1614, p-value = 4.34e-12) as well as a statistically significant negative relationship between test anxiety and life satisfaction (τ = -0.1280, p-value = 3.32e-07). Additionally, education expectations do not have a statistically significant correlation with personal wellbeing (τ = -0.0169, p-value = 0.5286) or with life satisfaction (τ = -0.0169, p-value = 0.5289). This indicates that students who experience high levels of test anxiety have lower scores on personal wellbeing and life satisfaction, in general. This coefficient of test anxiety with personal wellbeing for female students (τ = -0.188) is slightly higher than for male students (τ = -0.11) and statistically significant with p-values less than 0.05. Similar results are observed for life satisfaction as well.

According to Table 2, test anxiety is statistically significantly negatively associated with student wellbeing in Grades 7, 8, 9, and 10. However, no relationship is found for students in Grades 5, 6, 11, and 12. In Grades 11 and 12, the sample size is incredibly small at 60 and 31

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[1] The Alef Platform is a student-centered adaptive learning system which allows learners to self-regulate learning through adaptive tests, bite-sized multimedia content and analytics that provides feedback on cognitive and behavioral performance.

students respectively, which may have an impact on the p-value for those grades. For Grades 5 and 6, our assumption for this relationship not being statistically significant is that these students are still in primary school, so their test anxiety levels are most likely much smaller as compared to students in middle school and above, which starts in Grade 7 in the UAE. Overall, school-related stressors and student wellbeing demonstrate a negative correlation that is found to be more prevalent among female students and middle grade students.

Table 1: *The Association Between School-Related Stressors and Student Overall Wellbeing*

		Student Overall Wellbeing	
		Personal Wellbeing	Life Satisfaction
School-Related Stressors	Education Expectations	τ = 0.0157 N = 1298 p-value = 0.5286	τ = -0.0169 N = 913 p-value = 0.5289
	Test Anxiety	τ = -0.1614 N = 1298 p-value = 4.34e-12	τ = -0.1280 N = 913 p-value = 3.32e-07

Table 2: *The Correlation Between Test Anxiety and Student Overall Wellbeing by Grade Level*

	G5	G6	G7	G8	G9	G10	G11	G12
Test Anxiety	τ = -0.08* N = 152 p-value = 0.15	τ = -0.11* N = 114 p-value = 0.10	τ = -0.19 N = 146 p-value = 0.00	τ = -0.16 N = 149 p-value = 0.00	τ = -0.12 N = 178 p-value = 0.02	τ = -0.18 N = 115 p-value = 0.00	τ = -0.06* N = 60 p-value = 0.51	τ = -0.11* N = 31 p-value = 0.38

*The relationship is not statistically significant (p-value > 0.05)

Research Question Two Results

As shown in Table 3, test anxiety has a statistically significant negative correlation with student interim assessment scores (τ = -0.053, p-value = 0.046), while education expectation is positively correlated (τ = 0.19, p-value = 1.05e-14). The correlation is positive for education expectations, meaning that as a student's education expectations increase (i.e. how much education they believe they will be able to achieve, such as secondary school, undergraduate degree, master degree, etc.), their academic performance increases. On the other hand, test anxiety exhibits a negative correlation, in which as students report experiencing higher levels of anxiety, their academic performance decreases. The results also suggest that there is no significant relationship between student overall wellbeing (life satisfaction, personal wellbeing) and interim assessment scores.

When looking at school-related stressors and their relationship with student academic performance in regards to grade level in Table 4, we find that education expectations and academic performance have a statistically significant positive correlation in all grades except for Grade 12. This means that education expectations continue to have a positive relationship with academic performance for students from Grade 5 to 11, in which a student's high

expectations in their future educational attainment correlates with higher interim assessment scores. However, there is a very small number of Grade 12 respondents at only 20 students, which we believe may lead to this lack of statistically significant relationship in Grade 12. Interestingly, for test anxiety, although it was found to have a statistically significant negative relationship with student academic performance for the entire sample in Table 3, no relationship was found for students in any of the individual grade levels in Table 4. We are unsure if this is because of the low sample size or some other factor, but it is interesting when compared to the results from the sample as a whole. When looking at school-related stressors' impact on academic performance in relation to gender, no relationship was found for this contextual factor and is therefore not included in the below tables. This does not mean that gender does not correlate with the impact of school-related stressors on student academic performance, but none was found within this study for these particular students in the UAE K12 public school context.

Table 3: *The Correlation Between School-Related Stressors and Student Overall Wellbeing With Student Interim Assessment Scores*

		Correlation coefficient (τ)	p-value	N
School-Related Stressors	Education Expectations	0.1903	1.05e-14	1298
	Test Anxiety	-0.053	0.046	925
Student Overall Wellbeing	Personal Wellbeing	-0.016	0.4690	1298
	Life Satisfaction	-0.0104	0.7105	671

Table 4: *The Correlation Between School-Related Stressors and Student Interim Assessment Scores by Grade Level*

	G5	G6	G7	G8	G9	G10	G11	G12
Education Expectations	τ = 0.13 N = 166 p-value = 0.02	τ = 0.15 N = 127 p-value = 0.02	τ = 0.24 N = 134 p-value = 0.00	τ = 0.14 N = 150 p-value = 0.02	τ = 0.19 N = 177 p-value = 0.00	τ = 0.22 N = 96 p-value = 0.00	τ = 0.24 N = 55 p-value = 0.02	τ = 0.05* N = 20 p-value = 0.77
Test Anxiety	τ = -0.05* N = 113 p-value = 0.37	τ = -0.04* N = 85 p-value = 0.60	τ = 0.02* N = 111 p-value = 0.68	τ = -0.01* N = 114 p-value = 0.83	τ = -0.10* N = 133 p-value = 0.10	τ = -0.02* N = 76 p-value = 0.73	τ = -0.11* N = 38 p-value = 0.32	τ = -0.20* N = 16 p-value = 0.30

*The relationship is not statistically significant (p-value > 0.05)

Conclusion and Implications

This study set out to evaluate the contextual factors for Social Emotional Learning skills in the UAE K12 public school context. We sought to understand the relationship between school-related stressors and student overall wellbeing, between school-related stressors and

academic performance, and how both student gender and grade level play into these relationships. We found that test anxiety has a negative relationship with both personal wellbeing and life satisfaction, meaning that as a student's test anxiety increases, their personal wellbeing and life satisfaction decrease. However, we did not find a relationship between education expectations and personal wellbeing or education expectations and life satisfaction. Additionally, we found that female students have stronger negative relationships than male students between test anxiety and personal wellbeing as well as test anxiety and life satisfaction, meaning female students experienced this negative relationship to a greater extent than their male peers, in general. We also found that test anxiety has a negative relationship with student overall wellbeing in Grades 7, 8, 9, and 10. Additionally, we found that test anxiety has a negative relationship with student academic performance, meaning that as a student's test anxiety increases, their academic performance decreases. We also found that education expectations had a positive relationship with student academic performance, meaning that the greater a student's education expectations are for themselves, the better they perform academically. Even further, the relationship between education expectations and student academic performance was still found in all grades except for Grade 12 students, while test anxiety was not found to have a relationship with student academic performance when broken down by grade level.

The findings from this study highlight how student contextual factors can have marked impacts on their academic performance and health and personal wellbeing, and it demonstrates the need to help mitigate these impacts. Incorporating SEL skills and programming into schools has been found to help improve students' school attitudes, behavior, and performance (Zins et al., 2007), while making sure to take into account student contextual factors as this provides key "information about the conditions and practices that foster or hinder the development of these critical skills" (Chernyshenko et al., 2018). In order to begin bringing evidence-based SEL interventions into UAE K12 public schools, the next step is to evaluate the current status of student Social Emotional Learning skills based on existing SEL frameworks and measurements to identify gaps, such as contextualizing the Big Five framework utilized by OECD to the UAE context, as it contains several key SEL competencies and skills, such as curiosity, stress resistance, self-efficacy, and others (OECD, 2022). This research itself looked at the contextual factors for student Social Emotional Learning skills, which helps explain how student SEL skills were developed within the context of the study, as well as the interaction with academic performance. This will allow researchers, educators, school leadership, and other stakeholders to get a better understanding of where students currently stand in their own social emotional awareness and capabilities, as well as identify the gap in SEL skills for UAE students. Additionally, we will also be better able to understand the relationship between student contextual factors, their current SEL capacity, and student academic performance to gain a well-rounded picture of the UAE student population. Alef Education is currently incorporating SEL-focused videos into its online learning platform to help bolster students' SEL competencies (i.e. growth mindset). Future interventions will take this approach further and include more explicit SEL instructions in everyday teaching and learning. This will be accompanied by professional development for teachers, as they need to understand the importance of SEL and how to work with explicitly-designed SEL content in their daily classrooms and lessons. These interventions will work to help UAE K12 public school students thrive academically, personally, and professionally and live socially and emotionally competent and healthy lives.

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Condition Present, Condition Desirability and Necessary of Coding Education Management for Small Size Elementary Schools in the Northeast

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Abstract

The purposes of this research were to condition the present desirability and necessary of Coding education management. A sample group of the research is 370 small-sized elementary schools and the sample group using the formula Krejcie and Morgan, then using the Multi-stage random sampling method. Sample group has 370 directors, 370 technology teachers. The research instruments using collected data the questionnaire for 5-level estimation scale. The reliability value was 0.98. The statistics used for the analysis were mean, standard deviation and priority needs index. The results revealed that. The condition presents, On the whole is a much higher level ($\bar{x}$=3.67,S.D.=0.87). Considering each aspect found that the highest average was digital literacy development ($\bar{x}$=4.10,S.D.=0.86). Inferior to was developing the curriculum of Coding ($\bar{x}$=4.00,S.D.=0.91), coding learning community ($\bar{x}$=3.30,S.D.=0.87). The condition presents, on the whole is a much higher level ($\bar{x}$=4.20,S.D.=0.77). The considering each aspect found that the highest averages was learning ecosystem ($\bar{x}$=4.37,S.D.=0.66), inferior to was digital literacy development ($\bar{x}$=4.36,S.D.=0.80), the coding research and evaluation ($\bar{x}$=4.08,S.D.=0.83) and then necessary, on the order of magnitude is coding learning community (PNI=0.250), learning ecosystem (PNI=0.226), coding research and evaluation (PNI=0.185), coding learning (PNI=0.136), digital literacy development (PNI=0.062), curriculum of coding (PNI=0.055).

Keywords: Coding Education Management, Small Size Elementary Schools

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1. Introduction

Digital alteration to effect on reform the transformation, economic, social, politics, education and humankind livelihood. The technology evolution is able to apply on teaching and still pass on knowledge though, creating learning and incubating the profession to learner has been efficient and more effective. The conform to change and personal development purposes has been in the 21st century skills and digital skills for reinforcement learning lasting in the future [1].

Wing [2], "Computation Thinking" refers to the important 21st century skills not only reading, writing, and arithmetic. We should add computation thinking to every child's analytical ability. The present all countries around the world to see the importance of education teaching computing science to learner development has been in the 21st century skills has been curriculum improvement basic education (K12), England, Estonia, Finland, Canada, United States of America [3], Australia [4], Japan, Singapore [5], South Korea, Taiwan, Hong Kong [6].

Thailand, the ministry of education to push on the Computer language learning (coding) has been primary education curriculum improvement basic education in Buddhist Era (B.E.) 2008 (revised edition B.E. 2017). The educational teaching of computing science has 3 main points: computer science (CS), information communication technology (ICT), digital literacy (DL) [7, 8]. The past 3 years but to accept coding education management is new for teachers, directors because The teachers have been worrying about learning in the classroom. Some schools have been confused about the course that is this subject and the class teacher. The instruction has been Student able to learn according formula and indicator. The particularly in the small-size elementary schools has 120 students and 15,158 schools (10 June 2019).15,158 schools have deficient to teachers technology, budget, digital technology [9] be in accord with Office of National Education Standards and Quality Assessment. Important issues have difficulty in small-size elementary school development. There were: 1) The achievement of the students in small-size schools at low grades and the problem of illiteracy. 2) Shortage of budget. 3) Teachers are insufficient. 4) Deficient Information with quality. 5) The school deficient to evaluate external quality use to improving and continually development [10]. In order that Coding education management a school for effective. Development of teachers to be the ability to the coding education management and development of personal education have to knowledge and skills need to management, supervision, promote, efficiency of learning management [11].

The purposes of this research were to mark for will condition present, condition desirability and necessary of coding education management. To impose strategy and impel coding education in the small-size elementary schools be in accord with context and demand of small-size elementary schools happen to the success and the sustained forever.

2. Materials and Methods

2.1 Objective

To examine the education condition present, condition desirability and necessary of coding education management for small-size elementary schools in the northeast.

2.2 Conceptual Framework

The conceptual framework of research on this time the researchers synthetic of principle concept theory and related research about to [4, 5, 6, 7, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31] in the research of condition present, condition desirability and necessary of coding education management for small-size elementary schools in the northeast and the details are as follows.
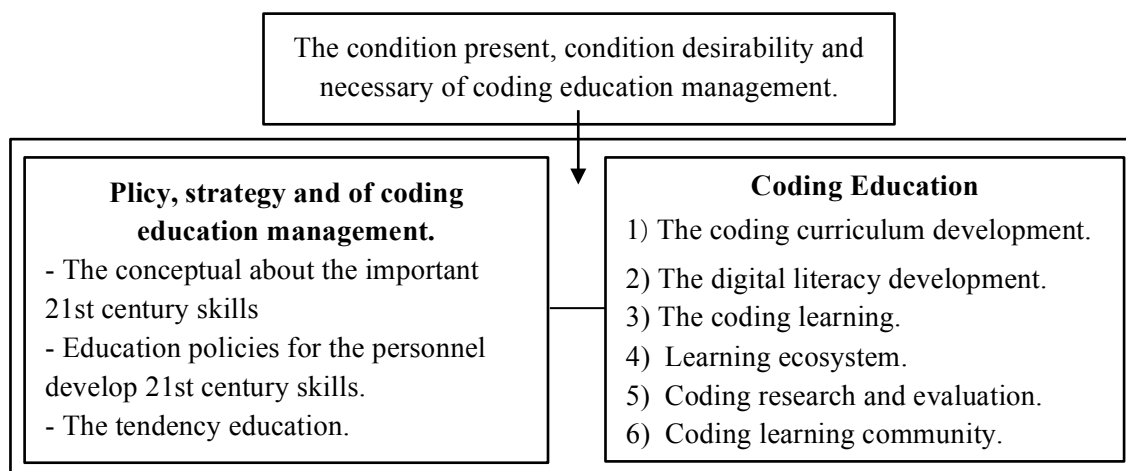
Figure 1. Conceptual framework

2.3 Research Methodology

In the research coding education management for small-size elementary schools in the northeast. The researcher has conducted the steps:

Population and samples

Population used in education. The small-size elementary schools in the northeast, office of the Basic Education commission 2021, 7,203 schools.

Samples used in education. Multistage random sampling by use criteria samples schedule of Krejcie and Morgan [32], 367 schools, by random samples on steps:
   1. The regional education office No. 10 11 12 13 and 14.
   2. Use education area office in the random. The random sampling that by draw lots   get 2 regional education office, 10 education area office.
   3. Use the small – size school is a random sampling that by draw lots get area office of 37 schools, total of 370 schools. The informant is 370 Directors, 370 technology teachers, total 740 person.

2.4 Instruments

Instrument used were a questionnaire about to condition present, condition desirability and necessary 3 steps:

Steps 1: General information listen to the respondents checklist, sex, position, position experience.

Steps 2: The respondents about to condition present, condition desirability and necessarily has quality the rating scale 5 levels, has index of item objective congruence in between 0.71-1.00, the discrimination between 0.50 to 0.87 and the reliability as 0.98: 1) The coding curriculum development. 2) The digital literacy development 3) The coding learning.4) Learning ecosystem 5) Coding research and evaluation.6. coding learning community.

Steps 3: Open-ended questionnaire for the respondents suggest more about to Coding education management for small-elementary schools in the northeast.

2.5 Data collection

The researcher takes to official letter from Faculty of Education, Khon Kaen University, assistant answering the questionnaire, enclose link the questionnaire, send the post office and the respond answered passage question online.

2.6 The data analysis

By the questionnaire receive to check the validity and analysis the quantitative data used computer software, mean, standard deviation and priority setting of the necessary by used modified priority needs index of Wongwanich [33] the formula calculation is PNIModified = $\frac{(I-D)}{D}$, condition desirability D is condition present.

In the validity and reliability, index of item-objective congruence between the question and the definition,7 expert has index of item-objective congruence between .71-1.00 show that content validity can be used and reliability of questionnaire, evaluation of alpha coefficient of Cronbach [34], discrimination is between .500 to .870, that is a questionnaire used in the research have reliability all as 0.98.

3. Results and Discussion

3.1 The results revealed

The finding of this research condition present, condition desirability and necessary of coding education management small-size elementary schools in the northeast found that.

The condition present of coding education management small-size elementary schools in the northeast was at a much level. ($\bar{x}$ = 3.71, S.D.= 0.87) Considering each aspect the highest averages were learning ecosystem ($\bar{x}$ = 4.10, S.D.= 0.86), inferior to was digital literacy development. ($\bar{x}$ = 4.00, S.D.= 0.91), lowest average to was Coding research and evaluation ($\bar{x}$ = 3.30, S.D.= 0.87).

The condition desirability of coding education management small-size elementary schools in the northeast was at a much level. ($\bar{x}$ = 4.20, S.D.= 0.77) Considering each aspect the highest averages were learning ecosystem. ($\bar{x}$ = 4.37, S.D.= 0.66) inferior to was digital literacy development. ($\bar{x}$ = 4.36, S.D.= 0.80) lowest average to was Coding research and evaluation ($\bar{x}$ = 4.08, S.D.= 0.83).

The total level of necessary of coding education management small-size elementary schools in the northeast in order importance:

1) Coding learning community (PNI modifieds = 0.250)
2) Learning ecosystem (PNI modifieds = 0.226)
3) Coding research and evaluation (PNI modifieds = 0.185)
4) The coding learning. (PNI modifieds = 0.093)
5) The digital literacy development (PNI modifieds = 0.062)
6) The coding curriculum development (PNI modifieds = 0.055)

Table 1. The condition present, condition desirability and necessary of coding education management.

Coding Education	Condition present			Condition desirability			PNI modifieds	No.
	$\bar{x}$	**S.D.**	Level	$\bar{x}$	**S.D.**	Level		
The conding curriculum development	4.00	0.91	much	4.22	0.84	much	0.055	6
The digital literacy development	4.10	0.86	much	4.36	0.80	much	0.062	5
The coding learning	3.81	0.91	much	4.17	0.79	much	0.093	4
The Learning ecosystem	3.57	0.96	much	4.37	0.66	much	0.226	2
Coding research and evaluation	3.45	0.95	moderate	4.08	0.83	much	0.185	3
Coding learning community	3.30	0.87	moderate	4.12	0.79	much	0.250	1
Total	**3.71**	**0.87**	**much**	**4.20**	**0.77**	**much**		

3.2 Discussion

The feedback of this condition present, condition desirability and necessary of coding education management have main issue into discussion:

1. The condition present coding education management small-size elementary schools in the northeast was at a much level, considering each aspect the highest digital literacy development, inferior to be the coding curriculum development, lowest average to was Coding learning community. Since have been basic education core curriculum improvement to be coding is news for teacher and director have to self-development. Be in accord with [7] improvement the basic education core curriculum 2008 (revised edition B.E.2017) and [8] refer to professional development, make to online training curriculum learning computing science for teacher and director: 1) curriculum be for teacher primary school. 2) The teacher and those interested in the programming Scratch. 3) The school director development. [24] refer to the code programming training at the beginning has been efficiency for development knowledge and confidence of the teaching, has positive results to be acknowledged of ability own better of attitude to teaching of code programming and understanding in the programming (variable, function, condition) should to development continuously for at least 1 year. [23] refer to development teacher of computational thinking, able to brief of 3: 1) development professional online and interweave. 2) The cooperation between schools. 3) The working together with schools and university.

2. The condition desirability of coding education management small-size elementary schools in the northeast was at a much level, considering each aspect the highest Learning ecosystem, inferior to be the digital literacy development, lowest average to was Coding learning

community. Since have been small-size schools has personal, expenditure and insufficient computer equipment be in accord with [9] refer to in the small-size elementary schools has 120 students have deficient to technology teachers, expenditure, digital technology, and Office of National Education Standards and Quality Assessment Important issues have difficulty in small-size elementary school development. There were:1) The achievement of the students in small-size schools at low grades and the problem of illiteracy. 2) Shortage of budget. 3)Teachers are insufficient. 4) deficient Information with quality. 5)The school deficient to evaluate external quality use to improving and continually development. [10]. [29] refer to the schools lack of incomplete technological infrastructure and covering all educational institutions in the whole system internet network, hardware, software and basic electrical system include to lack of insufficient computer equipment or accessory equipment to necessary learner learning process.

3. The necessary of coding education management small-size elementary schools in the northeast, the number one priority is Coding learning community so that the small-size schools have personal insufficient so that the teacher other subjects need to exchange the teaching techniques, instruction media with teacher technology be in accord with a concept of office of the education council [30] refer to should encourage and support to bring the process of exchanging leaning in coding, professional learning community (PLC) for exchange the teaching techniques, instruction media for learner have skill and experience computational science to have analytical skills, doing, solve the problem and adoption of digital. [6] refer to a platform that offers opportunities exchanged knowledge, programming, working together and build and trade applications and integrating computational thinking with other digital.

4. Conclusion

This study necessary the highest is Coding learning community so that the director has exchanging leaning between teacher with teacher didn't teaching coding be able to integration with the own subject. Should have mentors and platform that offers opportunities exchanged and Coding learning community and monitored continuously.

Acknowledgement

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Linguistic Redundancy:
Cases Studies by Evaluating Oral Performances for Chinese Students in TEM-4

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Abstract

Oral proficiency of EFL students has been deeply investigated in bilingual studies. This research aims to investigate discourse features of repetition and redundancy of Chinese students in English oral tests. Research concerning repetition and redundancy in bilingualism tends to understand how do they serve as teaching methods in classroom settings. In addition, repetition and redundancy are considered as interpersonal strategies in communication. There is rare research discussing repetition and redundancy as lack of oral proficiency in EFL students. This research is conducted to fill such gap. Corpus-based discourse analysis is employed. The Spoken English Corpus of English Learners (abbr. SECCL) is chosen to analyse oral performances of Chinese students in TEM-4 (Test for English majors, Band 4). Analysis reveals that Chinese students are likely to cause repetition and redundancy in terms of word, sentence and text. We have developed four theoretical frameworks from the perspectives of coherence, meaning progression and communicative purposes to illustrate mechanisms of repetition and redundancy. We explain reasons why repetition and redundancy occur, including the processes of transferring linguistic features of parataxis in Chinese into hypotaxis in English, lack of language proficiency, purposeful language choice and educational power. In addition, we recommend strategies to avoid repetition and redundancy in oral English tests. In terms of significance, this research illustrates how transfer process in SLA occurs by analysing English oral performances of Chinese students, which is helpful to further understand bilingual transfer processes in oral circumstances.

Keywords: Repetition, Redundancy, Meaning Progression, Parataxis, Hypotaxis, Coherence, SLA

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INTRODUCTION

People tend to transfer their language habits in their first language into their learning processes of second foreign language (Saville-Troike, 2012). Therefore, it is reasonable to consider that bilinguals tend to produce their second language with features from their first language. Based on this, this research paper aims to investigate a typical example of transfer. This paper aims to research Chinese bilinguals who are major in English in university in TEM-4 speaking test. It is discovered that Chinese bilinguals tend to reveal the discourse features of repetition and redundancy reflected in English test setting where Chinese students are asked to deliver English speech based on specific types of questions.

Three research questions are delivered throughout this paper:

(1) What are the forms of redundancy?
(2) What factors could result in redundancy to occur in speech?
(3) What measures could be conducted to help avoid redundancy in examinations?

In terms of the first question, this research paper has categorized redundancy in word, sentence and text level. Theoretical models are given to correspond to each categorization for further elaborations.

In terms of the second question, this paper offers explanations from several aspects as discourse features of parataxis in Chinese and hypotaxis in English, language choice, self-correction in speaking process and educational power manipulation.

As for the third question, several practical suggestions are offered based on specific forms of redundancy in speaking processes. It is thought that students should have more accumulation as their language restoration, apply linguistic skills to replace uttering redundant information and reduce frequency of self-correction in speaking processes.

The paper adopts the corpus-based analysis and discourse analysis to further understand the linguistic phenomena of repetition and redundancy in English discourse by native Chinese speakers in examination settings.

LITERATURE REVIEW

Definitions of Redundancy in Previous Research

Traditional definitions of redundancy were categorized into three aspects: substantial, operational and functional (Wit & Gillette, 1999). Substantial definition of redundancy views redundancy as the repetition of information and overlapping of meaning. Another substantial definition is that redundancy contains systematicity in language in sense that what is redundant in information could compensate what is essential in information if the essential one is dismissed. Functional definition of redundancy is based on the quantity of information to discuss the degree where redundancy occurs. Functional definition deems redundancy as a linguistic strategy to improve comprehension between dyads of interlocutors to avoid communicative failures（Nubold & Turner, 1987).

An apparent dichotomy between concepts of redundancy is to differentiate grammatical redundancy and contextual redundancy (Wit & Gillette, 1999). Grammatical redundancy

refers to the phenomenon that there tends to be several syntactic properties that indicate same meaning in a sentence, leading to occurrence of redundancy. Contextual redundancy means that repetition of information in lexical aspects where overlapping of meaning is spotted in lexicons.

In addition, redundancy in information could be categorized as co-textually originated and contextually originated. Co-textual redundancy refers to textual redundancy which serves as overlapping of meaning in its literal meaning. Contextual redundancy refers to reproduction of identical information which is deliberately construed by psycholinguistic and sociolinguistic factors (Weizman, 2011).

Redundancy is also viewed from multimodality as generation and overlapping of meaning across different modes (Horning, 1979; Goodman, 1969). Mechanism of redundancy in linguistic performance is considered to raise explanations from psycholingual and sociolingual aspects, which means that factors as social conditions, mental states, cultural originations, emotive stimulations, etc. should be taken into consideration (Wit & Gillette, 1999; Bazzanella, 2011).

Previous Research Conducted in Redundancy

Research conducted in redundancy are categorized from three aspects. Firstly, redundancy is on a large scale researched in language teaching (Spolsky, 1969; Darian, 1979; Caulfield & Smith, 1981; Diao & Sweller, 2007; Khodadady, 2012; Larsen-Freeman, 2012; Attofi, 2019; Horvathova, 2019). The role that redundancy serves as a teaching method in language teaching is investigated (Darian, 1979; Attofi, 2019; Horvathova, 2019). Efficiency of informational redundancy in teaching environment is also evaluated (Diao & Sweller, 2007; Attofi, 2019). Besides, many scholars emphasize importance of redundancy in language test by using the concept of reduced redundancy (Spolsky, 1969; Caulfield & Smith, 1981; Khodadady, 2012). Reduced redundancy refers to decreasing frequency of repetitive information in text. This is used in language tests especially in cloze tests to evaluate participants' readability and language proficiency. Secondly, there is much research figuring out relationships between redundancy and other linguistic factors (Weizman, 2011; Goodman, 1969; Moore, 2012; Knutson, 2010) as contextualization, communication, linguistic socialization, etc. Thirdly, there has been research connecting redundancy with Cooperative Principle (Grice, 1975) by exploring the quantity of speech in communication (Weizman, 2011; Goodman, 1969; Horn, 1993).

Redundancy Re-defined in This Paper

Based on the literature review, Redundancy is re-defined as the linguistic phenomenon of information repetition. Repetition of information could be viewed from the layers of word, sentence and text. Redundancy is categorized from the three levels. In terms of word level, redundancy is externalized as repetition of words. In terms of sentential level, redundancy is revealed as repetition of sentences which contain similar meanings. In terms of text level, redundancy could be viewed as the phenomenon of repetitive uses of words and continuous occurrences of similar or same sentences.

A reminder is that criterion for defining redundancy is not based on the forms. Namely, redundancy is not merely revealed as repetition of components or sentences. Redundancy is over-informativeness in sense that no apparent semantic progression is spotted throughout the

interconnectedness between or among build-ups of textual elements, which is externalized as equivalence or similarity between words or sentences. Therefore, redundancy is evaluated and analyzed from the view that highlights progression in meaning.

RESEARCH METHODS

This research is a corpus-based study. This research has chosen the Spoken English Corpus of Chinese Learners (abbr. SECCL) as the investigation target. This corpus records students' oral performances in the English oral test of TEM-4 (Test for English Major, Band 4). 96 texts are randomly selected from this corpus. In addition, only the recordings of test 2 are selected. Test 2 refers to the setting where students are required to self-talk for three minutes according to specific questions. There are four sub-corpora in SECCL and six columns in each sub-corpus. Four sub-corpora refer to data collected in four years from 2003 to 2006. 6 columns in each sub-corpus refer to different groups of examinees in each year. 4 texts are randomly selected from each column, thus forming 96 texts constituting as sample size. The process of data analysis is statistically calculated and classified. The linguistic phenomenon of redundancy is classified in word level and sentence level. In addition to this, discourse analysis is conducted in this research. This research has been integrating such sample with other aspects as communicative processes, negative transfer, meaning progression, etc. to build four theoretical models to elaborate underlying mechanisms of redundancy.

There are two reasons why corpus-based analysis and discourse analysis are chosen. On one hand, corpus-based analysis is quantitative and it helps collects sample and data for further statistical analysis, which is more straightforward. On the other hand, discourse analysis analyzes discourse symbols and language, which helps understand structure and implicit meanings of discourse to uncover mechanisms of redundancy in speech.

RESULTS

Data of each sub-corpus is displayed in Table 1.

Year	Frequency of redundancy (word level)	Frequency of redundancy (sentence level)	Total amount
2003	227	72	299
2004	213	50	263
2005	372	15	387
2006	332	10	332

Table 1: Data of each sub-corpus

The frequency of redundancy in word level, sentence level and total amount could be calculated as 1144, 147 and 1281. As there are 96 texts serving as sample size in this research, the mean value of each could be nearly calculated as 12, 2 and 14.

It is reasonable to assume that students who take TEM-4 English speaking tests tend to repeat words for about 12 times and sentences twice. The average value is nearly 14, which means that Chinese students are expected to repeat information for about 14 times in a three-minute oral test.

Redundancy in Terms of Word Level

Redundancy in terms of word level is underlined for better reference in the example below. Same symbols for underlines indicate the same word.

Example 1: Redundancy in Terms of Word Level
"*Once there was an old lady, he she lived... besid Lily's house, she had no baby she had no son or daughters, so she lived by her own. but because she was old she couldn't take care of herself, then Lily, a school a school a school... uni- a school student take took care of her.*"

In this case, words as "she", "school" and "take" are repeated. The utterer speaks "he" at first and re-utters "she". The utterer also speaks "school" for four times and "take" twice. Redundancy in terms of its word level is externalized as the tautology of words in a continuous and connected speech.

One theoretical model is formalized to explain the mechanism underlying functions of redundancy in word level.
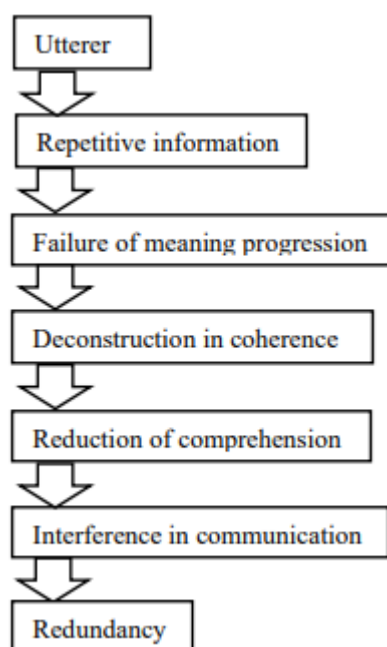
Figure 1: Theoretical Model Accounting for Word Redundancy

It is thought that the basis for redundancy to occur is the information overlapping in communication, which is repetitive information. When information is overlapped in communication, meaning of speech from the side of interlocutor is hard to progress. As there is no new information coming into communicative processes, coherence of text will be decreased to some degree. This will lead to reduction in comprehension in listener's side. Once comprehension of communication is reduced, communication will be hard to progress. Deconstruction of coherence in communicational dynamics will cause the impression of "redundancy" to occur.

Another example is offered to test the rationality of this theoretical model. Redundant words are underlined for better referencing.

Example 2: Redundancy in Terms of Word Level
"*He just er he just he just con er ca er he just care about himself.*"

Redundancy comes from the usages of words "he" and "just". It could be discovered that the core information in this clause in "He just cares about himself". However, the components "he" and "just" are repeated four times in constructing such information. From the perspective of the theoretical model, the repetitive words cause the sentence to be static in meaning progression, which means that there is no new information generation. It could be spotted as:

"*He just he just he just he just…*"

This sentence is not understandable as there is no predicate involved in. No one knows what this person (he) does and the meaning is incomplete. This will result in destruction in coherence within the sentence as the meaning is not progressed and there is no access to reach relevance in meaning. As meaning cannot be reached, comprehension of listeners will be on a large scale reduced. There tends to have bigger risk of discontinuity in communication. Impression of "redundancy" will occur to evaluate the speaker's speech.

Redundancy in Terms of Sentential Level

In this paper, there are two sorts of sentential redundancy. This paper will divide them into two sub-sections for clarity.

The First type

Redundancy tends to be revealed as information repeated across sentences. One example is shown below for further analysis.

Example 3: Redundancy in Terms of Sentence Level (the First Type)
"*Where is love? Love is truth feeling that somebody expresses to another. Maybe express somebody's love to somebody's wife and children and parents and all of and all the close friend on this one. And everyone need love and everyone should be loved. Why? Love is not also give some concrete fortune to somebody but also bring him some inside …, no one can be discard and everyone should get a love from others. And love is eternal credit to our lives. Whenever whenever we are, love will will be around us from our close friend and our parents and also maybe come from our wives and children.*"

From this example, it could be seen that the second sentence and the last one to some degree overlap with each other in sense that they both highlights the relationships between love and people as family members and friends. However, the impression of redundancy to this speech is not merely evoked by repetition of these two sentences. It is argued that the way where other sentences are combined and interconnected will have huge impacts on people's evaluations on speech. In this example, other sentences are combined in a more than non-logical way. For instance, from the third sentence, it is known that the speaker has put an argument as "*everyone needs love and to be loved*", which is immediately followed by a word "why". Therefore, there logical relationship of causality could be easily spotted in this text. Whereas, the answer is very confusing as it says "*Love is not to give concrete fortune to people but to offer something inside*".

The causal relationship could be interpreted as everyone needs love and to be loved because love is not to offer concrete fortune but to offer something inside. Despite that these sentences are grammatically construed, it is not understandable in its semantic sense and the logical relationship within this sentence is constructed in a more than confusing way. Such a chaotic construction in this text will lead to enhancement in impression of "redundancy". Speech uttered factually obeys a linear and chronological pattern as:

A-B-C-D-A

Letters here refer to sentences. Once the listener hears the first sentence A, he or she will continue listening to input of other information as B, C and D. However, B, C and D are constructed in a more than chaotic way, which means that they are not understandable or confusing. Listener will be likely to form negative impressions on such construction, deeming this as "bad", "chaotic" and "non-logical". Once the speaker re-utters the first sentence A immediately following D, the listener will be very likely to form the impression of "redundancy". The evaluation is not merely originated from repetition. It is more likely to be evoked by the construction of other sentences in a text. Therefore, the reason why the second and the fifth sentences are deemed redundant information is for the chaotic construction of information between them, which is externalized as the wrongly use of logical relationship of causality. Information between the second sentence and fifth one derives the negative impression and evaluations on the speaker. Therefore, once the speaker re-utters the same or similar sentences, it tends to be recognized as redundancy. Hence, the theoretical model accounting for its mechanism should be displayed in Fig. 2:
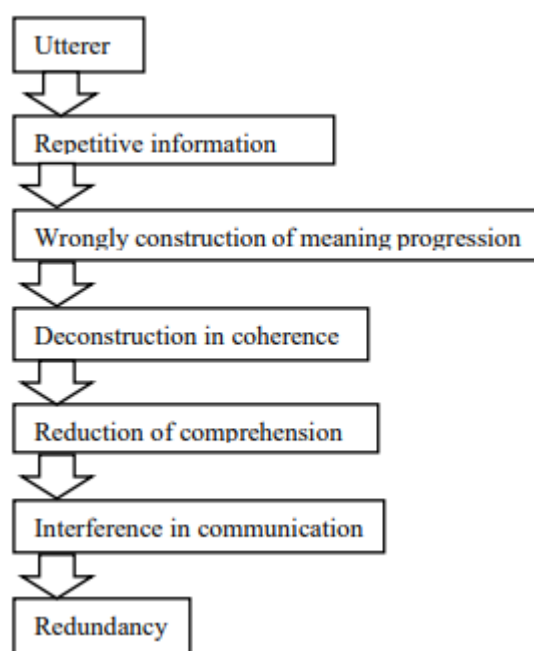
Figure 2: Theoretical Model Accounting for Sentential Redundancy (Type 1)

The Second Type

There is another form of sentence redundancy as repetitive use of same linguistic data in speech. One example is offered below for further analysis.

Example 4: Redundancy in Terms of Sentential Level (Type 2)

"We should have a... we should have a air... a eye to found the beauty and to enjoy the beauty. It's it's important to our life. We should value the things. We stay with our parents and our friends. We should learn we should learn to thank our parents because they give our life. We also should thank our friends, although sometimes we er didn't get on well with my friends <fringe>, but from the things, we can er become strong and learn. We also thank... we also thank the hardship. Because of the hardship we shou... we should we must be- become stronger and struggle and they can stand up in the world." From the teacher's words, I think about many thing in my be- ... in my daily life. I'm I always... angry with anybody, are always complaint everything, I always say er many er... word hurt my friends, and sometimes also er friends hurt hut my heart. But from my teacher's lesson, I know we I should thank everything, everybody, thank my parents, thank my friend, thank everyone who sneer who sneer you, although who hurt my heart. I also thankful, we I... I should have a air (eye) to found the beauty and enjoy the beauty."

From this excerpt, the sentence "*have an eye to find beauty and enjoy beauty*" is uttered in the first sentence and in the last sentence. In terms of the reasons why such redundancy could occur, it is thought in this paper that language choice in specific settings could result in redundancy in constructing information for interlocutors. One theoretical model is displayed below for further elaboration.
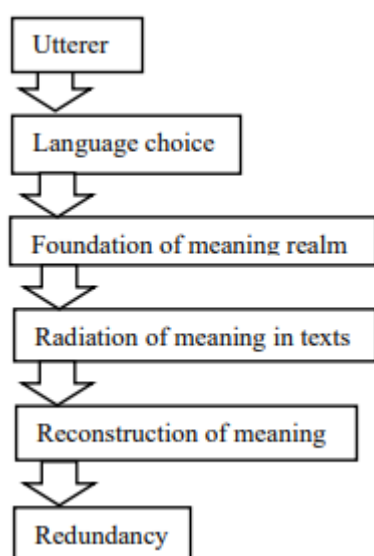
Figure 3: Theoretical Model Accounting for Sentential Redundancy (Type 2)

In this excerpt, *"Have an eye to find beauty and enjoy beauty"* serves as one language choice or linguistic material that utterer mentally restores in conversation. This choice could help to frame a semantic realm to negotiate and combine other meanings in a text. Namely, language choice could influence construction of other meanings, which is externalized as construction of sentences containing same or similar meanings. Therefore, the sentence "*Have an eye to find beauty and enjoy beauty*" is repeated in the last sentence.

Redundancy in Terms of Both Sentence and Word Level

It is stated that there is inter-relationship between both sentence and word redundancy. The first example is shown below. Redundant information in terms of both sentence and word level is underlined.

Example 5: Redundancy in Both Sentence and Word Level
"*And every students who lived in a in a in a center of the city, ... quickly, quickly go went home, quickly went home. And, ... there and there was only me who stayed... stayed in the classroom and I was very frightened.*"

In this excerpt, "quickly", "went", "home" and "quickly went home" here pertain to be redundant language data. In terms of word level, repetition of "quickly" and "went" corresponds to the type of redundancy discussed in the previous section. In terms of sentential level, the part lastly underlined could be interpreted as re-construction of previous language data ("quickly", "went" and "home"). As for how such an utterance "quickly went home" is construed, it is thought that the whole process includes the process of self-confirmation and of meaning reconstruction. In the first half, "quickly" and "go" is repeated, which indicates that the speaker utters these words to check whether these words are useful to construe what he/she wants to say, i.e., denotes the process of information self-confirmation. Afterward, the speaker reconstructs those fragmentary components (quickly, go) as "quickly went home". Though this example, some interconnectedness between words and sentences could be spotted.

One theoretical model of mechanism is presented in Fig. 4.
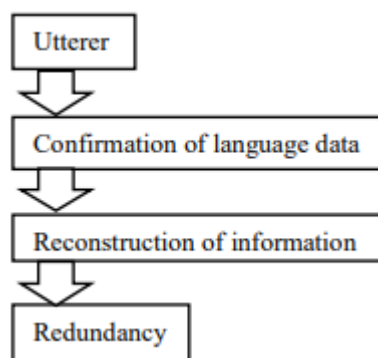
Figure 4: Theoretical Model Accounting for Both Sentence and Word Redundancy

Confirmation of language data tends to indicate confirmation to meaning components, words in special. "Construction of information" is always externalized in form of sentence.

Another example is presented below to further test rationality of such model.

Example 6: Redundancy in Both Sentential and Wordy Level
"*Immediately, tears, I... I broke, I immediately I broke into tears.*"

From this excerpt, semantic expression is incomplete by viewing the fragmented components in the first half. The first time of uttering components is not to construct speech. Nevertheless, it is to check the information to be used in speech. In the second half, all components are

repeated in form of sentences. The meaning is reconstructed. However, this leads to the discourse redundancy in both sentence and word level.

DISCUSSION

This section will mainly focus on the reasons why redundancy tends to occur under the circumstance where Chinese students speak English in English oral tests. In addition to discussing reasons, this section will provide some practicality and limitations.

Reasons Accounting for Redundancy

Parataxis in Chinese and Hypotaxis in English

In terms of the first type of sentential redundancy, sentential redundancy is likely to be caused by chaotic construction of information between sentences. How message is composed and constructed will on a large-scale affect listeners' perceptions on information and communication.

One possible explanation accounting for occurrences of the sentential redundancy is for the linguistic trait of parataxis in Chinese and hypotaxis in English (Halliday, 2004). Chinese is paratactic in its discourse construction, which means that Chinese values importance on relevance between or among different meanings rather than highlighting importance on logical relationships and forms helping construct utterances. Parataxis in Chinese indicates that meaning is more freely and subjectively perceived. However, English is a hypotactic language, which values importance of forms, logical relationships and explicit relevance between different meanings (Halliday, 2004). Thus, meaning in English is perceived in a more fixed and stable way.

In the process of transforming Chinese into English, process of negative transfer (Saville-Troike, 2012) will be evoked in the sense that Chinese speakers will inevitably be influenced by the paratactic discourse feature of Chinese, which means that parataxis functions in their processes of constructing English utterances. Hence, English texts that they form tend to be less tight in terms of logical relations and relevance in forms, which means that utterances Chinese people construct are to some degree perceived as less logical and fixed. Therefore, listeners (especially examiners in English oral tests) are more likely to evaluate those English discourses produced by Chinese speakers as chaotic and non-logical, which cultivates higher possibility for listeners to deem information as redundant.

Language Choice

As for the second type of sentential redundancy, one reason to account for the phenomenon of sentential redundancy is purposeful selection of language. In the settings of speaking tests, utterances are composed and constructed not in a natural way, but in a way where participants feel most at ease. This means that speakers tend to select their language that is most familiar for them. Unfamiliar linguistic materials for examinees means potential risk of getting embarrassed. Purpose of utilizing familiar linguistic materials serving as preparations is to cater exam requirements in which fluency tends to be deemed as an important standard for marking and evaluation. Therefore, some redundant sentential information is to some degree activated by the linguistic materials that participants are most familiar with to evoke the impression of fluent output of information to the examiner to get higher scores.

Language Proficiency

Regarding to word redundancy, lack of language proficiency in students could provide some explanations. Language learners are likely to get confused sometimes in speaking due to factors as syntax, vocabulary, etc. Therefore, students tend to repeat words sometimes when speaking. Additionally, self-correction sometimes occurs in their speaking processes to correct the words wrongly used. Self-correction (Schegloff and Jefferson, 1977) refers to the process where speaker self-checks and confirms correctness in language expressions. It is more than common in educationally conversational contexts as classroom, examination setting, etc. Self-correction ensures that meaning is understood by the side of receiver and avoids non-fluency in speaking. Purpose of self-correction is to maintain appropriateness in the self-image linguistically expressed. However, this process could cause redundancy as self-correction tends to occur in the form of repeating linguistic components. Speakers are likely to repeat components in sentences until they think they have clearly conveyed meaning, which finally turns out to have much rigmarole.

Tensity from Examinational and Educational Scenarios

Power can be witnessed by observing contents, relationships and subjects in specific settings (Fairclough, 1989). Namely, it is reasonable to say power dynamics exists within the realm where interpersonal relationship is conducted, which means that analyzing discourse might be originated in its stem of power control.

It is common for people to encounter moments when they find it hard to fluently and concisely express themselves. People sometimes suffer from information block in their process of constructing utterances. Pauses tend to occur when people suffer from such a dilemma where no appropriate utterances could be produced to dyads for further communication.

However, under the circumstance of examination settings, such a natural reaction caused by information block has to be avoided as far as possible. As getting stuck in speaking indicates lower language proficiency in speaking and is likely to result in low marks in tests, participants have to keep talking. As they might not be capable to naturally construct their utterances, redundancy might serve as attempt for counterbalance. Redundancy in speaking tests is very likely to be caused under the coercion of educational power control which deems getting stuck in speaking tests as inferior.

Recommendations

There are three recommendations that this research offers to Chinese students who will be taking English speaking tests in the future.

Firstly, as students tend to repeat those linguistic restorations which are most familiar to them, it is suggested that students should pay attention to multiple kinds of language materials as restoration to be used in speaking tests to decrease the frequency of repetitive use of same language expressions.

Secondly, it is discovered that Chinese students tend to repeat words for many times in delivering speech. It is advised that students should raise the awareness of using sequencing words or conjunctions as "well", "like" and "you know" to replace the second even third

repetitive use of words. Using such words could decrease the negative impression of "redundancy" raised by examiners.

Thirdly, self-correction is not highly suggested in speaking in sense that self-correction tends to cause repetitive use of words, which will be more than likely to result in the negative impression of "redundancy". Hence, under the condition that meaning could be correctly transferred to the side of listener, self-correction in terms of grammar, pronunciation, etc. could be ignored to some degree to maintain better fluency and continuity in speech.

Limitations

There are three limitations spotted in this study, which are separately elaborated below.
Firstly, it is thought that contextual analysis in this study is not comprehensive. Contextual analysis refers to analysis excluded from textual cues and included as extra-textual factors, i.e., societal factors (e.g., cultural influences, interpersonal relationships, etc.) should get engaged in. Despite this research mentions the importance of educational scenarios, such contextual analysis is not comprehensive because this study cannot reproduce the environment where speaking test took place. Therefore, contextual analysis is insufficient in this research.

Secondly, adoption of the corpus SECCL might be out-of-date to some degree in sense that this corpus records linguistic data from 2003 to 2006, which is nearly 20 years far away from nowadays. Despite the fact that discourse features of one language in specific group of speakers should not drastically change, it is thought that English proficiency of students who is major in English should to some degree be different from that 20 years ago.

Thirdly, this study merely chooses 96 sample as sample size, which covers nearly 10 percentage of this corpus. Further research could adopt larger sample to test the practicality of findings in this research.

CONCLUSION

In summary, we explore the language features of repetition and redundancy in Chinese students in English oral tests of TEM-4. This research adopts the corpus of Spoken English Corpus of English Learners (abbr. SECCL) to conduct discourse analysis. There are 96 samples randomly chosen to be statistically calculated and analyzed. It reveals that Chinese students are likely to have wordy and sentential tautology in speech. On this basis, discourse analysis is conducted. Four essential theoretical models are built to explain potential mechanisms of redundancy. In addition, this paper offers some possible explanations to account for redundancy in several aspects, including linguistic features of parataxis in Chinese and hypotaxis in English, deliberate language choice, shortfalls of language proficiency in Chinese students and tensity of educational scenarios. Furthermore, several recommendations are offered for Chinese students who will be taking English speaking tests. Ultimately, some limitations of this research are mentioned, which will be beneficial for further research to be conducted in the future. These results contribute to bilingual research especially research in testing language proficiency and the process of negative transfer in bilingual educational settings.

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A Study to Evaluate the Effectiveness of Google Solution on Middle School Teacher and Student Based on the Kirkpatrick 4 Level Model

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Abstract

The purpose of this study is to evaluate the effectiveness of Google Solution (GS) on the application of classes. Participants were 17 teachers and 115 students of 'O' middle school in Busan, and the period was from April to September for five months. As a treatment, each teacher was given a Chromebook equipped with Google OS, and six individual GS coaching programs were provided during this period. To evaluate the effectiveness of GS, modified Kirkpatrick model was applied and constructed into four evaluation stages of reaction, learning, behavior, and outcome. For research, mixed research was designed, and online survey, online interview, and field observation were used as research methods. For data analysis, paired t-test was used for quantitative analysis, and for qualitative analysis, three PhDs in instructional technology and two graduate students cross-reviewed interview and field observation data. The results are as follows. According to the modified Kirkpatrick model, the effect of GS was significant in the areas of reaction (class satisfaction), learning (skill utilization ability), and behavior (collaborative learning), but no statistically significant results were found in the results (entrepreneurship). However, at least significant improvements in reaction, learning, and behavior have been proven to be effective in improving teaching effectiveness in the classroom. The limitation of research is that GS coaching programs focused only on using smart devices and software as a treatment, suggesting that support such as education as well as devices and software should be provided when applying the edge technology to the classroom.

Keywords: Google Solution, Kirkpatrick Evaluation Model, Middle School

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1. Introduction

The advent of the Fourth Industrial Revolution (4IR) and the epidemic of COVID-19 brought many changes to the school field. Due to the preventive measures implemented, many attempts were made using technology to carry out non-face-to-face classes, leading to the discourse on the digital learning environment (An Un-ho, 2021). Teachers want to incorporate various technologies for practical classes, and students also want dynamic and participation-oriented classes, rather than boring classes focused on unilateral knowledge transfer.

Advocated by the Organization for Economic Cooperation and Development (OECD), the DeSeCo project was a project that aimed to identify the core competencies required for an individual's successful life and social development in 21st-century society. The intellectual use of tools, social interaction, and autonomous behavior were presented as three core competency categories that individuals must possess in future society. It can be said to be a proper education if it develops the skills necessary for the future in which the learners will live. Particularly in the school environment, where digital transformation is accelerating, teachers and students have to play the leading role in acquiring and developing these competencies. The ability to use technological tools has become imperative for teachers- as educators and students- as change-makers in the 4IR era.

In a future society where talented individuals (entrepreneurs) who view their lives and local problems from a new perspective and practice change are needed, it is crucial to have an education that develops core competencies for the future. This kind of education is possible through the active participation of students, not the current teacher-centered learning environment. The transition from teacher-centered, one-sided classes to student-centered, active participatory classes is crucial, and technology development is expected to play a vital role. Today, students are called digital natives because they use technology daily, which suggests that the learning environment can also induce students to participate more actively while using standard technologies familiar to them.

In particular, Google Solution is a tool that is currently being used a lot in classroom. It is also free of charge for educational purposes in many countries worldwide; this is meaningful because it provides an environment where students from various countries, including developing countries, can receive a quality education. Google Solution is expected to be a handy tool for both teachers and students because teachers can present, collect, and evaluate student assignments at once, and students can do assignments and create creative results using various applications. Many teachers are currently attempting student-participation classes using various technologies in the school field. Although technology research is actively being conducted by many, research on the effect of technology use by teachers and students in classroom instruction is insufficient. Therefore, the researchers analyzed the effect of using Google Solution for teachers and students at O Middle School in P Metropolitan City, applying the Kirkpatrick evaluation model, and implications were derived and presented.

The purpose of this study is to evaluate the effectiveness of teachers and students on Google Solution based on Kirkpatrick's evaluation model. In order to achieve the research objectives effectively in the theoretical background, first, we looked at the Creator Society, which is the shape of the future society, Entrepreneur, a concept similar to Creator, which creates new things, and the future capabilities of the OECD DeSeCo project. second, the specific contents

of the Google Solution, which is the intervention element of this study, were investigated. third, the four-level evaluation factors of Kirkpatrick applied to investigate the effectiveness of this study were considered.

2. Research Problem

The purpose of this study is to verify and evaluate the effectiveness of applying Google Solution in the school field. Accordingly, the following research questions were established to achieve the research purpose.

- What is the level 1 (Reaction) evaluation of teachers and students?
- What is the level 2 (Learning) evaluation for teacher and students?
- What is the level 3 (Behavior) evaluation for teachers and students?
- What is the level 4 (Entrepreneurship) evaluation for teachers and students?

To this end, data were collected through questionnaires, interviews, and field observations, and the data were analyzed.

3. Theoretical Background

3.1 New Talent Image and Creator Society as Emerging New Era

3.1.1 Emerging Creator Society

Generally, a creator refers to a person who shares their content online or on a platform to generate profit and effectively express or convey information or opinion. This platform can be expanded to the creator economy from the perspective of profit generation since it supports creators who produce original content and builds a creator economy ecosystem. However, from the perspective of education, it is necessary to introduce the concept of the creator society, where diverse, original, creative, and high-quality content is produced through sharing and collaboration among individual creators.

3.1.2 Entrepreneur as New Talent Image

The term 'entrepreneur' has been defined by many scholars. Schumpeter (2016) defines an entrepreneur as someone who creates new combinations through creative destruction, such as inventing new products, introducing new production methods, and opening new markets. Peter Drucker defines an entrepreneur as a person always exploring and responding to change and putting it into practice as a new opportunity. Park Su-hong (2009) defined an entrepreneur as a person who conceives and practices a new system that does not exist in all areas of society and emphasizes creativity and practicality. From the preceding definitions, an entrepreneur can be defined as a person with practical power who does not fear change and uses change as an opportunity to create valuable new products through creative destruction. In other words, an entrepreneur is a practitioner who recognizes new values and creates them through practice.
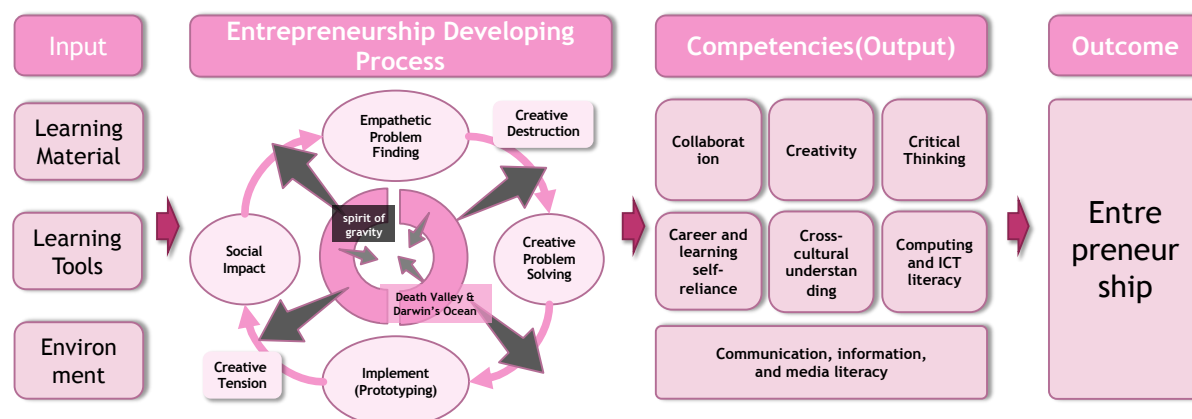
Figure 1. Entrepreneurship developing process

3.1.3 DeSeCo, a Core Competencies

The OECD's DeSeCo core competency emerged from the background of finding out the core competencies required for the present and future society by learners and actualizing them through school education, as educational competitiveness is a source of national competitiveness. The core competency of life refers to the ability to contribute to a successful life and a well-functioning society.

3.2 Google for Education

3.2.1 Composition and Characteristics

The Google solution consists of a software-concept Google workspace and a hardware-concept Chromebook. Google workspace is used differently depending on whether it is for business or education, with Google Workplace for Education used as a tool for teaching and learning. Chromebook is a Chrome OS-based laptop developed by Google, and Using Chrome Education, the educational use can be enhanced. Both Google Workplace for Education and Chromebook are cloud-based; that is, they are driven by cloud computing technology. Cloud computing refers to an environment in which resources can be shared, and various computing tasks can be executed through a server connected to a network medium such as the Internet (Park, 2015). In other words, Google Workspace for Education and Chromebooks provide an environment where data can be stored in a server connected through resources, and the data can be retrieved or processed through various terminals.

3.2.2 Characteristics of Google Workplace for Education

Google Workspace for Education is Google's online space and tool to easily collaborate, streamline classes, and keep the learning environment safe to improve the quality of educational activities. It consists of Google Classroom, a space for education and learning, and tools such as Google Docs, Google Sheets, and Google Slides used for various purposes. Although Google tools have high individual use value, incorporating them using Google Classroom presents tremendous advantages. Using Google Classroom, teachers can distribute class materials and assignments and also share videos necessary for their class. Students can download or view teacher-provided materials, perform tasks directly within Google Classroom, or upload projects created with applications other than Google tools. Students can perform tasks individually and as a team within Google Classroom, which is systematized, promoting communication and collaboration (Kim, 2022).

According to Google for Education(2022), the following values can be realized using Google Workplace for Education in the educational scene. First, strengthen the class effect by increasing the efficiency of collaboration and connectivity with easy-to-use learning tools. Second, improve productivity through saving time by creating, organizing, sharing, and grading assignments in one place. Third, enhance the level of student assignments. It's about helping students submit their best work with simple tools that support learning. And fourth, protect school data. It keeps all users' assignments, identities, and personal information safe with proactive security features and controls.

When using Google Workspace for Education, other tools are integrated based on Google Classroom, so it is a kind of Learning Management System (LMS). Of course, individual devices can be used without linking with Google Classroom, providing real-time data sharing and collaboration between members.

3.3 Kirkpatrick 4 Level Evaluation Model

Kirkpatrick's evaluation model is usually mentioned when stating the most widely used education and training evaluation models. The model consists of four steps: reaction, learning, behavior, and result. The details of each step are as follows:

The first-stage evaluation is an evaluation of the reaction stage and is intended to measure the satisfaction of people participating in the program. The evaluator can obtain information on the most basic needs of the participants through the evaluation of the reaction stage. Subjects to evaluate in the reaction stage are learning topics, instructors, educational facilities, educational schedules, learning materials, and other suggestions or suggestions.

The second step is evaluating the learning stage, which aims to measure the degree of change in learners' attitudes and knowledge or technology development due to education and training. The evaluation of the learning stage is usually carried out immediately after the completion of learning. Still, pre-and-post-evaluation can be conducted to compare the before and after situations. When constrained by circumstances or budget, this evaluation can be performed more accurately by possibly using a control group.

The third step evaluation is the evaluation of the behavior. This evaluation aims to assess the changed behaviors observed when the training participant returns to the space where work or daily life takes place after the training is over. The period for evaluating the behavioral stage is usually divided into before and after the training.

The fourth step, result evaluation, aims to evaluate the final output from the participants due to education and training. The outcomes generated by education participants as a result of education and training include an increase in production, quality improvement, cost reduction, accident reduction, sales increase, turnover rate reduction, and profit increase. When evaluating these final outputs, data are collected before and after the implementation of education and training while operating the experimental and control groups as much as possible. Statistical analysis is often performed using internal data such as organizational reports, questionnaires, and interviews.
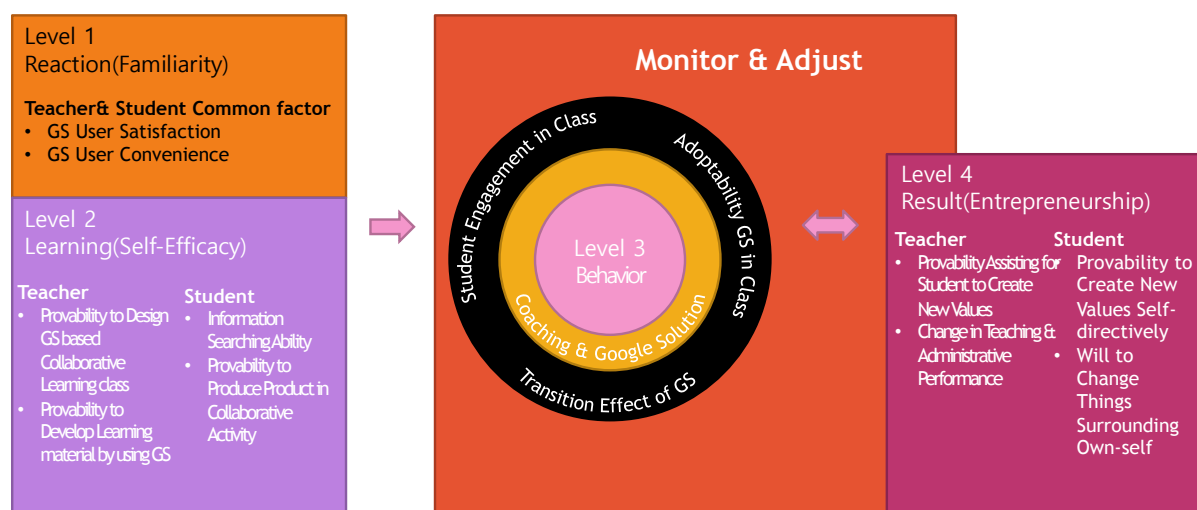
Figure 2. Modified Kirkpatrick evaluation model

In this study, we evaluated the effectiveness of teachers and students on Google Solution based on Kirkpatrick's evaluation model. In order to achieve the research objectives effectively in the theoretical background, first, we looked at the Creator Society, which is an image of the future society, Entrepreneur, a concept similar to Creator, which creates new things, and the future capabilities of the OECD DeSeCo project. second, the specific contents of the Google Solution, which is the intervention element of this study, were investigated. third, the four-level evaluation factors of Kirkpatrick applied to investigate the effectiveness of this study were considered.

4. Research Method

4.1 Research Design and Procedures

This study was conducted in the order of research preparation, pre-data collection, treatment, post-data collection, and data analysis. In the research preparation stage, questionnaires and interview questions were formed for data collection, and rubrics for field observation were developed. According to the characteristics of the field research, a meeting was held with the head of the research department of O Middle School, the research site, and the representative of Company E, who will run the teacher training program, to share the necessary information and request cooperation.

After preparing for the study, pre-treatment data were collected through questionnaires, interviews, and field observations. Due to the restrictions associated with the pandemic, data collection from a large number of people, through questionnaires and interviews, was conducted online. In contrast, researchers visited the school site and conducted face-to-face observation for field observation. As for the treatment, students were given Chromebooks while teachers were provided with a Google coaching program. After treatment, data were collected in the same way as pre-treatment data. Data analysis was performed by synthesizing pre-post data.
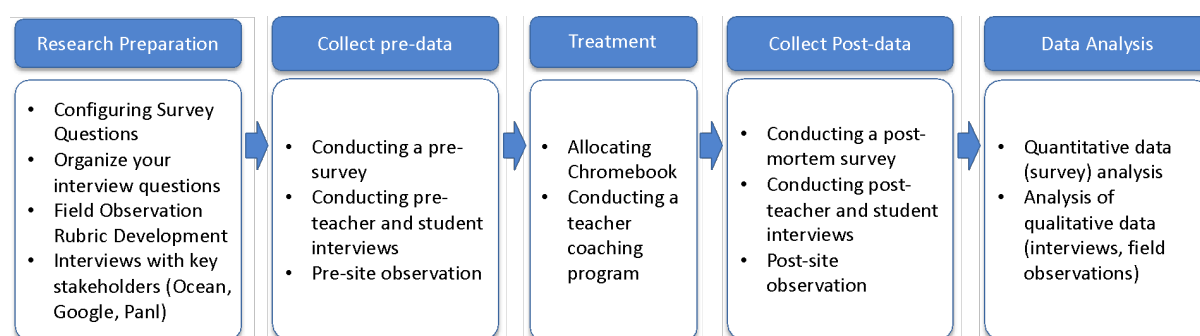
Figure 3. Research process

4.2 Research Subject

The subjects used for this study included 17 teachers and 131 students. The teachers from O Middle School voluntarily participated in the study. Out of the 17 teachers, eight have been teaching for less than a year, and four teachers with more than five years and less than ten years of experience. Three teachers with more than ten years and less than 20 years of experience, and two teachers had more than 20 years of experience. Each teacher participated in a pre-post survey and interviews. Details are shown in the table below.

Participant	Subject taught	Teaching Career	Gender
Teacher A	Korean Language	Less than 1 year	female
Teacher B	English.	Between 10 and 20 years	female
Teacher C	Mathematics	More than 20 years	female
Teacher D	Humanities Society	Between 5 and 10 years	female
Teacher E	Humanities Society	Less than a year	female
Teacher F	Humanities Society	Less than a year	male
Teacher G	Humanities Society	Between 10 and 20 years	female
Teacher H	Information	less than a year	female
Teacher I	Mathematics	less than a year	male
Teacher J	Mathematics	less than a year	male
Teacher K	Mathematics	between 5 and 10 years	female
Teacher L	Art	less than a year	female
Teacher M	Mathematics	less than a year	female
Teacher N	English	between 5 and 10 years	female
Teacher O	Science	between 5 and 10 years	female
Teacher P	Career and Occupation	for more than 20 years	female
Teacher Q	Science	Between 10 and 20 years	female

Table 1. List of teacher participant

The learning participants were 131 students in the second year of O middle school, and the number of survey and interview participants are shown in the table below.

Section	Method	Number Of Participants
Pre	Questionnaire	76
	Interview	15
Post	Questionnaire	115
	Interview	15

Table 2. Number of student participant

4.3 Research Tool

4.3.1 Survey

A survey was conducted to collect quantitative data. According to the Kirkpatrick 4-level model, the questionnaire domains were divided into response, learning, behavior, and result, and detailed questions were composed for each part. Survey questions were based on the existing Albus project, the item composition was revised, and additional items necessary for the research were developed. The questionnaire was implemented as an online questionnaire using a Google survey, and survey links were shared with the participants.

4.3.2 Interview

Pre and post-interviews were conducted to collect qualitative data. A structured interview composed of questions for each participant according to the Kirkpatrick 4-step model was designed, and the interview was conducted online by two doctoral researchers in education pedagogy.

4.3.3 Field Observation Rubric

For systematic field observation, rubric was developed, and field observation was conducted.

5. Research Results

For teachers and students, surveys were conducted before and after introduction of the Google solution, which is the treatment effect. Based on the Kirkpatrick model, the survey questions consisted of reaction, learning, behavior, and result, according to each level. The pre-and post-survey responses were compared and analyzed using paired t-test.

As a result of the analysis, teachers statistically showed significant results in the reaction, learning, and behavior levels, respectively, but not at the result level. In the case of students, it was statistically significant at all levels. The result of the overall analysis is shown in the table below:

section	level	Treatment	M	SD	t
teacher (n=17)	Reaction (Level 1)	Pre	2.64	0.63	2.524*
		Post	3.36	1.01	
	Learning (Level 2)	Pre	2.79	0.90	3.086**
		Post	3.79	0.99	
	Behavior (Level 3)	Pre	3.67	0.53	2.665*
		Post	4.22	0.67	
	Entrepreneurship (Level 4)	Pre	3.53	1.07	1.833
		Post	4.12	0.78	
	Result (Level 4)	Pre	3.69	1.23	-0.242
		Post	3.59	1.27	
student (N=115)	Reaction (Level 1)	Pre	3.19	1.07	5.687**
		Post	4.02	0.82	
	Learning (Level 2)	Pre	3.76	1.03	4.680**
		Post	4.42	0.78	
	Behavior (Level 3)	Pre	3.75	0.81	3.585**
		Post	4.17	0.76	
	Entrepreneurship (Level 4)	Pre	3.78	0.97	3.987**
		Post	4.31	0.85	

$*p<.05, **p<.01$

Table 3. Result of survey

5.1 Result of Level 1

In the level 1 reaction stage, users' satisfaction regarding the usage of Google Solution was determined. As a result of analyzing the pre and post results of the survey for teachers and students, it can be seen that the satisfaction of using Google Solution increased significantly for both teachers and students post-treatment.

In the interview results, the frequency of usage of negative words such as disappointing, difficulty, and uncomfortable was high for teachers and students in the pre-interview. However, satisfaction, efficiency, actively, easier, convenience, and confidence were words from teachers and students after the treatment. It can be seen that the frequency of appearance of more positive comments also increased.

In the observation of class, Edu-Tech, a different solution, was used periodically during the pre-testing; however, it was unfamiliar to users. GS was used subsequently, making it possible to observe the classes through Google Classroom. Results from this level showed a meaningful increase in the satisfaction level of users post-treatment.

5.2 Result of Level 2

In the level 2 learning stage, the self-efficacy of users in using Google Solution was examined. As a result of analyzing the pre- and post-results of the survey for all participants,

it can be seen that the sense of self-efficacy has significantly improved. Teachers confirmed their confidence in creating collaborative learning activity plans or class activity materials using Google Solution has increased. The result shows that the student's sense of efficacy in information search, cooperative learning activities, and joint production has also significantly improved.

From the interview results, negative vocabulary, such as difficult, ambiguous, and complicated, was used somewhat frequently in the Pre-Interview. However, participants expressed words reflecting more improvement in efficacy, such as professional, skillful, and better, after the class. Thus, the frequency in the appearance of terminology reflecting the gain has increased.

Regarding class participation observation, the use of Google Solution was relatively low initially. As neither teachers nor students could use it effectively, the goal of efficiency and effectiveness in class could not be achieved. On the other hand, after the course, teachers skillfully used Google Classroom as a platform for learning management. Through the various functions of Google Classroom, teachers led the class by proficiently utilizing tools from different Google Solution. In addition, students used the Google Solution tools presented by teachers readily, and the use of Chromebook, which has several advantages over tablets, seems to have increased the efficiency.

5.3 Result of Level 3

In the level 3 behavioral stage, the extent to which the use of technology such as Google Solution makes a difference in class or work life was investigated. As a result of a survey of teachers, it was found that there was a significant improvement in terms of students' participation in classes and teachers' behavior in applying technology to the learning environment. However, no substantial progress in classes conducted by the teachers was noticed. The survey results did show notable changes in the level of improvement in class concentration or changes in students' life.

From the interview results, the frequent use of negative vocabulary such as lecture-style, difficulties, annoying, problem, and harmful was noticeable in the beginning. Afterward, the appearance of more positive words- confidence, positivity, actively- for teachers and easier and better for students can be seen to have increased. In light of the interview content, rather than unilaterally stating that there was a significant change as a whole, the good and bad points were considered and recognized.

During field observation of class, there was a limit to the efficiency of class due to the use of the unfamiliar Edu-tech solution at the onset. Nonetheless, upon managing the class using Google Classroom and various Google tools, the effectiveness was enhanced by the increase in the concentration and interest of the participants.

5.4 Result of Level 4

In the level 4 result stage, the effect of using Google Solution on creating new value was confirmed. The result of the survey of teachers showed no significant change in whether students could help make new values through self-directed learning activities or not. In addition, it was confirmed that there was no substantial change in the effect of the Google Solution on work reduction.

Although it was found that there was no significant change in the survey results, the results confirmed by the interview showed that, due to the nature of school work processing, Google Solution was used more than in other schools, and as the Google Solution utilization capacity increased, it became possible to process the work more efficiently. From the interview results, it can be seen that the frequency of words such as problem and inconvenience in the preliminary test and efficiently and conveniently in the concluding test was high for teachers. In the case of students, the occurrence of vocabularies such as annoying, hard in the Pretest and confidence, solve, new, and better afterward was high. Students seemed interested in creating new values or making several attempts to change norms as their proficiency and freedom in executing tasks through Google Solution increased.

Results from class observation did not show an apparent change in the creation of new values. However, seeing that the student's proficiency in class improved, it can be inferred that there was a change in the student's attitudes toward creating new values.

6. Conclusion and, Implications

This study was conducted by applying Kirkpatrick model on the effectiveness of using Google Solution for O middle school in P metropolitan city. Kirkpatrick's education and training evaluation model consists of four stages: reaction, learning, behavior, and result. Though the results of evaluating the effectiveness of Google Solution were limited, the efficacy of the program, such as improving class satisfaction, increasing technology utilization, and promoting cooperative learning, was found to be high.

According to Kirkpatrick's education and training evaluation model, it is assumed that lower-level stages of hierarchical prerequisites for satisfying higher-level steps. In other words, the next stage's performance depends on the previous step's performance. For example, the performance of the second stage can be obtained only when the performance of the first stage is satisfactory. Since the results of this study were consistently obtained for all levels, it can be proven that using Google Solution for teachers and students was efficacious in the teaching and learning environment.

In the first-stage reaction level evaluation, the satisfaction of teachers and students with the Google solution improved significantly. The second-stage learning level evaluation recorded a noticeable increase in the self-efficacy level. Although there was no improvement in the third step behavioral level evaluation in the structural dimension of class change, the teacher's behavior in solution application in class and the student's learning behavior showed significant improvement. According to the Kirkpatrick evaluation model's level dependency assumption, increased user satisfaction led to the advancement of self-efficacy. A series of step-by-step processes resulted in a positive behavioral change in the evaluation subjects; hence, study results showed that applying the Google solution was effective.

However, in the fourth-stage result level, it was challenging to confirm satisfactory results. The evaluation was intended to determine the impact of training on creating new values by training participants. Changes in the quality of the class and work performance through improvement in the way teachers perform their duties and creative changes and modifications in students' learning behavior were evaluated.

Through the application of a technology called Google Solution, the degree of impact of technology application seen through the enhancement of class interest, increased ability to

use technology, teacher's work performance, and student cooperative learning ability- was found to be high. Among the future core competencies proposed by the OECD DeSeCo project, the ability to 'use technology interactively' and 'Interactive in a heterogeneous group' belonged to the first and second categories, respectively (OECD, 2019). Therefore, this study showed that GS's powerful data sharing and collaboration feature could improve digital literacy and educational interaction.

While the Google solution functions as an effective medium for education and contributes to improving the effectiveness of education in the course of the class, the following are suggestions to enhance its capacity for future society beyond technological knowledge. Undoubtedly, utilizing technology is necessary to develop talent for change-making. However, during the transition period of this new paradigm, called the 4IR, it is required to deviate from the existing framework and bring about new changes; that is to say, it is necessary to foster transformative competencies presented in OECD Education 2030 (OECD, 2019).

At the core of transformative competence is the creation of new values. The growth of transformative competence should lead to the development of an entrepreneur who discovers and seeks solutions to life and regional problems and leads to new changes for a better future. An entrepreneur is not a person who establishes a company for economic business and operates it for profit only, but a person who discovers and solves the problems of an individual's life and the problems of a region closely connected to that life from a broader perspective. An entrepreneur finds, solves, and brings about change (Park et al., 2022).

To prepare for the future society, fostering entrepreneurial competencies is necessary. Entrepreneurs can discover real problems, creatively analyze the causes of problems, and develop innovative solutions to bring about changes in the lives of individual members and the local ecosystem. Therefore, education should take place in the big picture to foster entrepreneurship as a transformative competency for the future society.

From the preceding, it is recommended that GS go beyond improving the effectiveness of classes and become an integrated tool for fostering entrepreneurship through creative problem-solving education methods based on practical problems such as problem-based learning, active learning, design thinking, and entrepreneurship competency-enhancing class models. Therefore, Google Solution for Education needs to present a methodology for fostering entrepreneurship as a functional transformative competency, along with the use of software tools like Google Classroom and Chromebook as mediums to promote competency development.

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Life Design Counseling With High School Students: A Narrative Approach

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Abstract
According to educational experts and career guidance, the market and global economic forces linked to a postmodern society have led to a crisis in career development models and practices. in such an uncertain changing context students face major challenges during their career development. The life design method was used in this study to increase student's engagement in their career development. Life Career Design is a constructivist and narrative model-based approach that is mainly advised to empower people and inspire them to participate in a process that has personal significance for them. Our career interventions consist of face-to-face interviews with 30 high school students. This study uses a qualitative method to offer in-depth details on this practice. The narratives of 30 participants were analyzed afterward using the content analysis technique by NVivo 11 software to better assess students' career development. The findings can help students improve their capacity to anticipate their career actions and design strategies appropriate for their goals and context. This study is a component of the efforts made by improving career interventions to better prepare future citizens for participation in a knowledge-based society.

Keywords: Secondary School, Narrative Approach, Vocational Process, Students' Context

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Introduction

The global change in the economy and the strong competitiveness caused new conditions in the labor market. Today, the world of employment is experiencing transformations in the skills required, automation of tasks, and time-limited projects. This situation has caused instability and insecurity in the 21st-century labor market and difficulties in predicting life course trajectories (Briddick et al., 2018).

These new global restrictions affect the individual's relationship with his or her context. Razumova (2014), finds that an increasing number of students on the verge of graduation are unable to proceed to the next phase (Juan Guillermo Mansilla Sepúlveda et al., 2020). This fact has made it necessary to create strategies for preparing people for unpredictability, strategies that prioritize adaptability, flexibility, and lifelong learning. The current vocational development theories are no longer valid in the face of the unstable situation of the post-modern economy, leading vocational development authors to propose a set of postmodern theories based on social constructivism. The updated theories place a stronger emphasis on the interpersonal and interpretative processes that underlie career development.

The problems caused by an inadequate guidance system produce societal and economic problems in countries. The political decision-makers are concerned about the difference between new graduates' qualifications and labor-market demands. Researchers propose that universities establish guidance centers that operate under a guidance system that is open to their socioeconomic context, takes regional characteristics into account, provides support services, and has a center for the engineering development of guidance and counseling programs. These writers propose that this system adhere to the continuity of the study cycles and meet the goals and needs of its socioeconomic setting (Juan Guillermo Mansilla Sepúlveda et al., 2020).

Background of study

One of the most essential tools in counseling practice is the interview. A counseling interview might differ depending on the approach utilized; in the counseling intervention, the personality of the client, the training of the counselor, and the relationship to the context must all be considered.

Faced with the ineffectiveness of career development approaches Life design has emerged to focus on the postmodern link between humans and their environment (Santilli et al., 2019). The globality and flexibility of the context involve people in what Gidden (1991) describes as a reflexive personal project (Hooley, 2021). In 2012 Savickas proposed the life career design approach to update counseling practices to the needs of the postmodern society and to strengthen the previously existing career approaches, life design counseling is a method of career counseling that applies the Career Construction Theory (Cardoso et al., 2016; di Fabio & Maree, 2012). Life design is used to help students explore their own identity, improve their career development skills and participate in the progression of their career development (Wehmeyer et al., 2019).

Given the significance of structural and contextual elements in shaping young people's futures, it is now crucial to thoroughly examine their life experiences. The qualitative method appears to be suitable in this regard. Numerous youth-related social issues, including addiction and deviance as well as educational concerns like engagement and dropout, have

been investigated using qualitative methodologies (Ravn, 2019). Their results seem beneficial for policymakers (Barabasch, 2018). Narrative methods have been applied in career interventions since the constructivist paradigm first appeared. At the beginning of the 21st century, investigations were carried out to understand the new conditions for career development. In Vilhjálmsdóttir's research, the narrative method is considered by counselors effective in helping individuals to deeply investigate the meaning of their life experiences (Vilhjálmsdóttir & Tulinius, 2016). Life stories are methods that have proven their effectiveness in helping clients define their identity in a complex context and clarify the central themes of their careers (Cardoso et al., 2018, 2019; Whiston & Rahardja, 2005).

We aim by this study to explore secondary school students' vocational processes to provide intervention based on the Life career design paradigm that will suit their needs. To that goal, we carried out this research to document the changes that resulted from doing student-centered narrative sessions.

Research Design

This study aims to understand in depth the process of students' vocational development. To accomplish this goal, a qualitative approach seems appropriate. We chose the narrative method since it was advised to be useful for the author in recognizing the key variables involved in the vocational process. On the other side, they allow students to invade the meaning of their choices. Thirty students in their final year of secondary school from various fields of study participated in this study: Arabic physical science, French physical science, life and earth sciences, mathematical sciences, and the professional baccalaureate with a specialization in automobile mechanics. the sample consists of 16 boys and 14 girls. Participants ages range from 16 to 19 years old. Our career intervention is to encourage students to tell their vocational stories. The length of the stories ranged from thirty to forty minutes. By the last, students were self-evaluated by a questionnaire, the survey consisted of open-ended questions about elements or sequences of their vocational experiences to be deleted, reformulated or new decisions made. Each interview was digitally recorded for later transcription.

Data analysis was carried out with NVIVO11 software to qualitatively analyze and show the data gathered from the student's responses in the form of a mind map.

Discussion

Narrative interventions with a constructivist approach, such as life career design, are well adapted to the difficulties encountered in such a hectic environment. Such interventions enable participants to explore their decision-making process, consider anticipating their acts and create meaning that is pertinent to their circumstances.

This study is conducted by the question, "What are the themes that structure secondary school students' vocational development?" We explored sequences of life of high school students that lead to the construction of their project, we found that their project develops mainly through the interaction: individual- contexts. The thematic analysis of the student stories reveals many issues that were mentioned by all the respondents. Secondary school students base themselves primarily on individual characteristics: academic performance and interests, they also assign importance to their professional projects, study projects, and the influence of the family.

At the beginning of secondary school, students make selections about their vocations based on personal traits like their interests and school experiences. The decision-making process grows more difficult as students near the end of secondary school and choices include additional factors like career aspirations. Major significance is attached to the transfer to higher education. Our findings support earlier research by Gati and Saka, who examined the difficulties associated with decision-making and advises the use of counseling programs in this regard (Babarović & Šverko, 2016). The family's influence on vocational development is evident in the students' narratives: the family is the primary support indicated by the students and the first context in which their aspirations are formed. Many researchers state the complexity of the family's involvement, particularly in supporting their children's career objectives, which supports the importance of the family in academic and vocational development. The socio-cognitive career theory (SCCT) is a conceptual framework that combines all the components of the vocational process to explain how they relate to one another. The SCCT emphasizes the role of context concerning other variables and introduces the notion of agentivity, which prompts researchers and counselors to consider creating career management interventions.

The qualitative approach highlighted the complexity of the vocational process and the interconnection of the factors that influence it, allowing for a better understanding of the student's needs. The narrative method's flexibility enables the participant to become an expert on their own experience. As a result, qualitative methods are advised to address research hypotheses that carry a higher level of quality. A qualitative method is an approach that is adapted to explain the profound changes that vocational development is undergoing due to social and economic transformation.

Conclusions

This study reveals the interactions that lead adolescents to develop their vocational choices. At the beginning of secondary school, individual characteristics are often favored in students' choice, towards the end of secondary school criteria associated with access to higher education and labor market conditions interfere to make the vocational process more complicated. It is recommended that programs be designed to allow for a variety of exploratory activities to assist students to explore their interests and develop links with the world of work. One of the limitations of our qualitative research is the small sample size, which prevents results from being generalized. Nevertheless, the qualitative method is beneficial to thoroughly explore some hypotheses, including ours.

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A Case Study of How Unanticipated Preservers Work on Preserving Local Culture Relating to Textiles in Northern Thailand

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Abstract

This paper aims to present how unanticipated preservers have been part of preserving local culture, particularly in making textiles. The paper contributes to the understanding of the foundations of local cultural heritage practices relating to textiles, to contemporary practices of preserving local culture (LC), and to perspectives on 'preserving heritage skills' with different types of participants who have been involved with conserving LC. These participants also shared their perspectives and their challenges when preserving LC, especially through the COVID-19 pandemic. The research combined participant observation with practice-based auto-ethnography and gathered further data through in-depth interviews and a focus group. The research focuses on key actors who are involved with safeguarding LC in Northern Thailand through their contribution to textiles practices. In Northern Thailand (the Lanna Kingdom) where LC and Buddhist practices are heavily intertwined with heritage textiles. Moreover, local people still practise LC and they have been very proud about presenting their culture and calling themselves Lanna people and still use the local Lanna language. Therefore, local people have a strong mind-set for preserving their culture, as well as those unanticipated preservers who are monks, weavers, local business women and foreigners who live in the Lanna Kingdom. The research explores their various modes of involvement in safeguarding LC, identifies their common problems and considers their suggestions for designing a potential framework to model ways which will safeguard LC, particularly in heritage textiles. Lastly, the research shows the importance of 'flexibility' and 'adaptability' as crucial for preserving LC in today's world.

Keywords: Safeguarding Cultural Heritage, Northern Thailand, Heritage Textiles, Buddhism

Introduction

This paper aims to present how unanticipated preservers have been practising contemporary preserving local culture (LC) activities, particularly in making textiles with different types of participants involved in protecting local culture. The research focuses on key actors involved with safeguarding LC in Northern Thailand through their involvement in textile practices. Moreover, the research has focused on anticipated preservers engaged with conserving local cultural practice but not as a primary responsibility, or their job. They have shown passion and willingness to work either with public or private projects.

This research was developed from my PhD thesis. I started collecting data in 2016 as part of a residency project with the British Council. In 2019, I undertook fieldwork in Northern Thailand, interviews and a focus group with selected participants from different career paths who had experience with safeguarding heritage textiles practices. In 2022, I revisited two local weaving communities as I was concerned about how they work under unexpected circumstances, such as the Covid-19 pandemic. As a result, this paper aims to present participants' perspectives and challenges when preserving LC, primarily through the pandemic.

Literature review

The literature review shows showed that the modern concept of safeguarding cultural heritage needs to consider that inscribing each intangible heritage or local tacit knowledge skills may cause a conflict between nations. Different nations and cultures have different views about the preservation of heritage and the use of local tacit knowledge. On the other hand, we should have focused more on co-owners or cross-cultural enrichment (Foley, 2014). According to Noor (2019) reported in ASEAN Focus, the members consented that historians would respond to such movements by perceiving that much of what we take for granted as 'ours' in Southeast Asia is the consequence of cultural borrowing and sharing joint development and cross-cultural enrichment. For example, 'Batik' has been inscribed as a nationalart of Indonesia but can be seen in Malaysia and Southern Thailand. Indonesia and Malaysia have a common historical background and cultural heritage (Chong, 2012).

Likewise, when considering who is a preserver, the tacit knowledge owner or any actors involved with safeguarding activities can be called a preserver. Logan and Smith (2019) suggested that safeguarding is no longer dependent on top-down interventions by governments or heritage experts but, in contrast, people who are involved or are interested in local communities can be safeguarding actors. Therefore, a renewed approach to heritage studies should focus on heritage management and conservation and the processes of production, consumption, and engagement with heritage in its many and varied forms. Previously, Buckland (2013) had intimated that people involved in transferring cultural heritage knowledge could range could range from generations of family members to academics and professional such as teachers, researchers, historians, and other related fields that support education, such as librarians, museum curators, and archivists.

This paper focused focuses on the anticipated preservers, such as people from different industries who have experience of safeguarding cultural heritage activities. Those closest to the local weaving community are the Buddhist monks because the Buddhist temple is still the centre of the local community in the Lanna Kingdom. Also, weavers should be considered to

be preservers as well. They are the tacit knowledge owners and the people who pass this knowledge on to others.

Research methodology

The research study comprised fieldwork to collect data in Thailand using participant observation, in-depth interviews and focus group methods combined with multi-visual recordings and text-based research approaches. I focused on transcribing and then analysing audio and visual data from the fieldwork in the language of the collection. Self-reflexivity using autoethnography was considered part of the research to reflect narratives relating to the study and experiences while doing fieldwork.

Findings and Discussions

*The first part was modified from my PhD thesis.

The Lanna kingdom and people

'Lanna' or 'Lan Na' kingdom

When referring to 'Lan Na (or Lanna ล้านนา) Kingdom', it means a 'Kingdom of a Million Rice Fields' (translated by RTGS), and it is a precise area in Northern Thailand. The historical timeline of the kingdom is open to debate, resulting in it being shown as referring to different years. Nonetheless, this research followed the work of Ongsakun (2018), as most modern research relating to the Lan Na Kingdom has often used Ongsakun's timeline.

'Local Lanna people, local practitioners'

After I visited about 20 local communities in Northern Thailand, the British Council residency team recommended several outstanding communities. I selected two local communities interested in business models or ideas to develop their communities. The first was the Paw Phafai community-based in the Pua district, Nan province. The vision of the leader of the community, Kumpanuch (known as Pa Paw), was unlike other heads of local weaving communities. She is always keen to learn new knowledge and is open-minded. She related how she joined all the events and seminars for training weavers, learning business and marketing and always welcomed outsiders to visit her community so that she could gain experience and knowledge from them.

The second community is located within a temple, namely Pa Bong. Wat means temple in Thai. Therefore, I call this place Wat Pa Bong. Due to the passion of Abbot M for this temple, realised that this community was a weaving community before, and all women in his he wants to preserve local weaving skills within the Pa Bong community. His mother was a weaver, as well as his mother's friends. He then mother's generation could weave. Thus, he asked each house that still had a traditional loom to donate to the temple so that he could build a weaving house within the temple because his enthusiasm for bringing back the of lost traditional skills in the community enabled retired women to earn income.

Private sectors, unanticipated preservers

To define unanticipated preservers, I have divided performers into four main groups; those who have participated in Buddhist activities, fashion and textiles designers, businesswomen, and foreign organisations or foreigners. All these groups have been involved with preserving cultural heritage activities, as they have shown devotion and willingness to work with public or private projects.

Fashion designer, the connectors and product developers

Fashion designers are people with whom local weavers have experience working, as designers are consistently chosen as part of both public and private projects. The head of safeguarding and developing local wisdom of silk in the Queen Sirikit Department of Sericulture (The Silk Department) clarified that the reason for working with fashion designers is to establish Thai textiles' capabilities in diverse designs and occasions. Thus, fashion designers recreated a significant role in bringing their design expertise into the heritage textiles made by traditional techniques. The head of the Knowledge Management Division, The Support Arts and Crafts International Centre of Thailand (SACICT), shared an idea for conveying fashion designers to perform for heritage textiles that, before, most local weavers solely weaved textiles for traditional tube skirts. Therefore, textile preservers from both private and public sectors wanted to develop textiles for Thai people or international markets; we must create internationalise garments to look more contemporary.

Preserving cultural heritage through hotel business

To focus on businesswomen, they worked on public projects but focused on producing products in the long term. Nonetheless, the businesswomen I interviewed had not worked with authorities and preferred to work independently. I interviewed the founder and manager of Raya Heritage hotel, located in Chiang Mai province; they explained that the hotel team workers wanted to create the hotel as a 'living museum', conveying a story through the place. The hotel's concept is called 'the riverside life', which was the place of crossroad culture. The site was a port for international vendors from Myanmar, Laos, and Yunnan, China, who sold their products. Consequently, the Lanna culture has a touch of those cultures from neighbouring countries. The hotel has been enlightened by the story and transformed into the concept through interior design, services (for example, exhibition, spa, and local foods in the restaurants), and local products. Additionally, the team continued working with local craft makers and had three significant outcomes regarding preserving heritage textiles: interior decorations, a craft shop, namely 'Him Gong' and exhibitions.

Westerners who preserve Lanna cultural heritage

The foreign organisations such as The British Council or the Young Men's Christian Association (YMCA), both organisations have sufficient funds and focus on what they want to accomplish. Still, foreign organisations and foreigners working with heritage textiles worked with businesswomen's projects. Academics and experts have frequently been part of private projects, as well as royal projects. Also, foreign organisations hired academics to be part of projects as researchers. Only a few projects from the private sector needed academics to be part of their projects, as the purposes of the private sector are focused on business first while preserving cultural heritage is a consequence of their business sustainably.

During fieldwork in Chiang Mai, a capital province of the Lanna Kingdom, several participants referred to two westerners who lived and worked with local heritage textiles, The first person is a violinist and an artist who published her works relating to local materials, particularly on hill tribes' ethics. The second person had a background working in academia and published academic works; she was a lecturer and operated a studio to create local textile products and workshops. The first person used multimedia to illustrate her works, whereas the second person was a lecturer who became a textile maker and businesswoman. They have taken various directions regarding working with cultural heritage. Their passions regarding heritage textiles, specifically ethical materials, encouraged them to keep working on their paths.

Common problems from working on safeguarding cultural heritage textiles

Unanticipated preservers shared their related problems, which I concluded into three topics.

1. *Weaving heritage textiles* is a job for older people and is made for the elderly

Most people's perspective to traditional textiles. One well-known designer said to help and support cultural heritage textiles especially with ethnic patterns, he did not have enough power to inspire Thai people to wear ethnic textiles clothes. Hence, he often selected only plain Thai textiles that had been made following traditional processes, with no ethnic patterns for making dresses for his brand. Furthermore, the perception of a 'weaver' as a job for 'older people' could be a reason for young adults being unwilling to work on such textiles, as explained by a senior member who worked for SACICT. He also considered that older people had been trained as weavers for almost their entire life, while younger people brought new ideas from design techniques that they learned from western countries, creating new designs. Thus, they both have different expertise.

2. *Lack of continuation*

One businesswoman said Thailand has unstable politics, causing a lack of continuation of public projects in the long term. Two fashion designers also said they were designers who had been working with various public projects for about a decade. They had to work from the same starting point for almost every project, which they felt meant that there was no new development, causing them to lack motivation, and become bored, although they were willing to help and support local practitioners.

3. *Memorising, demonstrating but not recording*

The uses of memorising and demonstrating provides a robust method that is widely used for learning tacit knowledge, the 'Kru pak luk cham' (ครูพักลักจำ). The approach has been operating as part of Thai's culture. It is an idiom word meaning they have learnt by observing what teachers were doing without asking their permission and have never been taught by teachers, which the Lanna textiles expert it said could be one of the reasons for mistakes. During fieldwork, I heard this word in terms of describing how weavers have learnt about weaving and dyeing textiles.

Therefore, these three common problems cause unanticipated preservers to work on safeguarding heritage textiles. The images of heritage textiles are for older people, causing a decline in the number of weavers. It is their challenge to change the image and to promote a

career path working in heritage textiles. However, due to unstable politics in Thailand, it was not easy to continue working on each project. Therefore, businesswomen preferred to do something other than work with public projects and run their private projects instead**.** The final challenge was focused on local weavers, who are tacit knowledge skills owners. However, they usually need to improve in recording their methods of practising weaving textiles, causing difficulty in passing on or using their know-how to work on new developments.

*The second part was collected data in 2022.

Challenging of preserving cultural heritage activities during the pandemic

I collected data through casual conversations with participants via text messages, video calls, and observations in early 2022 as I was concerned about the participants' situations in the Post-Covid era. I also revisited the Wat Pa Bong and Paw Phafai communities in October 2022 for participant observations and in-depth interviews with Abbot M and Pa Paw**.** The findings of this paper are presented as three main topics.

1. Collapse of the community and acceptance of the changes in Wat Pa Bong

Image 1**:** Abbot M left the new building,
where the textile shop on the right was closed**.**

When I revisited Wat Pa Bong in 2022, I was shocked as I had seen no one**.** The weaving house, the weaving space, and even the textile shop was closed. I met Abbot M in a new building, where we sat on the ground floor and had an interview.

Abbot M started telling a story; the pandemic of Covid-19 did affect this community, even the temple since all weavers in this community were older women, more than 70 years old**.** Their grandchildren and their children did not want them to gather in the temple due to the risk of catching Covid. Also, they considered their health, that they should no longer being doing hard work such as weaving textiles**.** As a result, only a few weavers were still working in the community, meaning there was less production capacity.

When I visited the temple in 2016 and 2019, the weaving textiles house was hectic. They had massive orders all year round because they weaved a piece of local textiles for making a

traditional tube skirt, called, in Thai, **'Sin'.** Sin is still a crucial object for women in the Lanna kingdom because Lanna people still wear Sin for special occasions. However, when I visited in 2022, I saw no sign of what I had seen before.

Abbot M said if the weaving community has to close, let it be**.** He can accept it**.** He said he opened this community with a passion for safeguarding local skills in textiles, but all the weavers are older women like his mother. Their children or grandchildren did not want to be a weaver, even though he had encouraged them and told them they could make an income from weaving traditional textiles. He said that, since 2019, he knew that the community would have to close one day, but until his last breath, he would try his best to keep the community alive**.** Also, because of the pandemic, some weavers passed away, some retired from working as a weaver, and there were no younger weavers**.** The weaving community was in danger of closing**.** Abbot M said he would try his best to run the community but if he failed he accepted that the community had to close.

Abbot M is a Buddhist monk who is neither a businessman nor a designer. Therefore, he said in a Buddhist way that if it happens, he is ready to accept it. However, I discussed one thing with him, and we were worried. Although I had a connection and could find orders for the community, this is not a sustainable business way because of the limited production capacity, and weavers can only weave traditional local patterns without a new design. This is the limited ability of older weavers in this community. On the day I visited, therefore, I only saw a loincloth with a plaid pattern in blue and red unlike in the past, when I saw more than ten local patterns with countless colours.

The revisiting of Wat Pa Bong made me reconsider the limitations of a preserver. An unanticipated preserver such as an Abbot monk had yet to experience working with public or private sectors because before he taught, his community had already satisfied orders all year round**.** When unexpected things happen, he cannot solve them by himself alone, and the result causes a community to come to an end quicker than he expected.

Image 2**:** Loincloth with a plaid pattern in red and blue

2. Lessons from Pa Paw: how to adapt to unexpected circumstances

Unlike the Wat Pa Bong community, when I revisited the Paw PhaFai community, I was surprised that the buildings in the community were renovated and many visitors came to visit the community.

Pa Paw told a story of what happened during Covid-19. For the first three months, from January to March 2020, all businesses and facilities within the Paw PhaFai community were closed; a textiles and clothes shop, a weaving space, a sewing room, a guest house, and a restaurant. She re-opened the restaurant as the first business amongst other businesses within the community because food could be managed more easily. She only needed two chefs and one waiter to run the restaurant. Also, the restaurant staff were much younger than the weavers, who were up to 70 years old. Therefore, running the weaving textiles section during the earlier pandemic was difficult.

> It was difficult at the beginning. Everything happened very quickly. We had to close the community. As you already know, most textile weavers are elderly. Therefore, their families were concerned about their health and the risk of getting the Covid-19 virus. Some passed away, so we only had a few weavers left in our community. Your weaving teacher, Yai Wan, also retired from being a weaver. Her family worried about her health, and no one could drive her to the community since they all were busy with their rice farming. (Kampanuch [Pa Paw], October 2022)

Hence, I did not have a chance to see Yai Wan again and the other weavers who I met during the fieldwork in 2018. All weavers I came across during field research days I had never met before. However, Pa Paw said some were part of the community for so long, while some were new members after redeveloping the community. On the other hand, during the earlier pandemic, Pa Paw said it was time to pause everything, including herself. She said it was undeniable that Covid-19 gave her a clear direction, consider what she wanted to do, and the community was improving in a better way.

> Just like others, at the beginning of the pandemic, we stopped what we did, including our work in the community. I did not do anything for over three months. It was the first time I had time to be with myself in a long while. I was always busy, as you have seen me, but Covid-19 gave me a break, so I used that time to reflect on what I wanted to do with this community, which is to build a 'learning centre' within the community. (Kampanuch [Pa Paw], October 2022)

Pa Paw first told me about her dream to build a learning centre when I met her in 2019. However, it was only a plan. She needed more time to start this project. She said most weavers are older women, continually retiring each year, or they have passed away. Without newer generations of weavers, soon the community would have no weavers. Therefore, she wanted to build this community as a 'learning centre', so people interested in weaving textiles could take short courses or be partners with any schools or universities. Also, she opened a full-service of homestay within the community. I stayed there before in 2019, but at the time, it was not full-service as they were new to running a homestay business.

As she mentioned the learning centre, I met her on the day she had opening. The activity area was set with bamboo tables and chairs. There was a stage for the fashion show and local musical show. Pa Paw said the provincial governor of Nan province would be the president of the today's opening ceremony. The significant changes in the Paw Phafai community from the last time I visited in 2018 was that the buildings had been renovated.

> I started renovating the buildings in the community during the pandemic. A few customers were visiting our community, so I took that opportunity to renovate both three main buildings. If I want to build this place as a learning centre, my target group

is younger people**.** The community needs to look clean, bright, not dull and old like before, so my aim in renovating the buildings was to attract younger people to feel safe and keen to learn to weave. (Kampanuch [Pa Paw], October 2022)

I agreed with her. I first saw the community in 2022, and it was different from my last time; I told Pa Paw how I was impressed that the community had been changed in a good way. The old sewing room was transformed into a clothes shop; 80% of products were made within the community, while 20% were selected from other communities, explained Pa Paw. The weaving space was placed with tiles on the ground floor and had more lights than before. Lastly, a previous clothes shop was changed into a sewing room, with a bigger space for sewing machines and pattern-making space.

I asked her how she came up with all these ideas during this difficult time while other local weaving communities had been suffering from the pandemic. Pa Paw said:

As I said, I did not have time to stop working**.** Before the pandemic, I only went with the flow, which was good in that way**.** However, I was always wondering what I wanted for this community**.** How to make this community last longer and be a more sustainable business? I want to build the community as a learning centre for local textiles**.** Nevertheless, I need a fund to renovate the place. (Kampanuch [Pa Paw], October 2022)

Image 3 and 4**:**
Paw Phafai community in 2019 (left) and 2022 (right)

3. Starting / improving / developing

Starting new platforms

Pa Paw's daughter is about 34 years old. Therefore, she knows how important social media and selling on online platforms are. During the pandemic, she was the one who told her mother to continue selling products through social media such as Facebook and the LINE application. She also started posting and updating about what happened in the community on the Facebook page.

My daughter was the person who told me that we need to start promoting our work and selling our work on online platforms. That was where we started earning more income even than before the pandemic. Without the pandemic, I probably would not have started focusing on online platforms because I would think our community was

unprepared and did not need it. But because the pandemic happened, the online platforms were the solutions for our community to sell our textiles and clothes. (Kampanuch, October 2022)

Pa Paw said she could sell more products, and people know about the community more than before. New customers knew about the community from social media and were her online customers. People could travel when the Thai government relaxed the rules for controlling Covid-19. Paw PhaFai's online customers visited the community because they wanted to experience the processes of making textiles and trying new designs of clothes in the community.

Therefore, Pa Paw, who runs the Paw PhaFai community, knew how to use a chance crisis by reflecting herself on the very first aim of building the weaving community. She is always flexible and ready to change whenever it comes. Therefore, she switched the sales platform from onsite to online. Also, she adapted to the community by opening a full homestay service next to the weaving space. Lastly, she knows that her local textile products always need improvement in design and quality.

Developing/ improving design products

When looking at Paw Phafai community's product ranges, the products range from 10 pounds to 400 pounds. As mentioned, the community was renovated, including building a new shop. In the shop, their products are varied, from pieces of traditional textiles to ready-to-wear outfits.

Conventional textiles are essential items of every community. Usually, the difference between each community is the patterns, techniques, and colours. However, Paw Phafai is well-known for ready-to-wear Tai Lue textiles outfits because the community has a sewing and pattern-making room. In 2019, I saw their products; however, the pattern cutting should have been more modern. At the time, they only adapted from basic pattern blocks and used old-style outfits such as still using a thick shoulder pad, making the total look ageing.

Three years later, I revisited this community. This time I saw one corner of the new shop and those outfits shown in the images. They looked different. The cutting was simple but relevant to the current trend; although they have used their Tai Lue pattern, the total look of each outfit can be worn on casual days. When I asked the daughter of Pa Paw, she said that a Thai fashion designer designed this collection. He is well-known as a fashion designer who works with heritage textiles across the country using design approaches combined with local techniques.

Image 5 and 6: design products in 2019 (left) and 2022 (right)

Conclusions

Final reflections and limitations of the study

'We all can be preservers'

The study demonstrates how people from dissimilar work fields and environments have worked to safeguard cultural heritage textiles. Each participant was linked by local weavers, who had chances to work with involved participants from diverse professions. Since unanticipated preservers are people with expertise not mainly based on heritage skill, I added insights into how these participants have carried out activities towards safeguarding heritage textiles, with their careers varying from fashion designers and businesswomen to foreigners and foreign organisations.

The revisit of the communities was part of this research to explore how local practitioners continued working on weaving textiles during the pandemic. Due to limited time, I only visited two communities in Northern Thailand. I revisited the Wat Pa Bong community and Paw PhaFai community, as I was concerned about how they were after the pandemic. Wat Pa Bong was disintegrating. On the other hand, Paw Phafai was improved in a good way. It is not straightforward to compare these two communities since a Buddhist monk runs one community, and a weaver with more business experience runs the other. The revisiting of both communities also made me reconsider the limitations of unanticipated preservers, especially if they do not have experience of working with the public sectors nor private sectors but only as individuals.

Therefore, Pa Paw, who runs the Paw PhaFai community, knew how to use a chance crisis by reflecting on her very first aim of building the weaving community. She is always flexible and ready to change whenever it comes. So she switched the sales platform from onsite to online. Also, she adapted to the community by opening a full-service homestay next to the weaving space. Lastly, she knows that her local textile products always need improvement in design and quality.

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Development of Media Literacy Curriculum for
Junior High School Students in Thailand

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Abstract

Media Literacy is one of the essential 21st Century skills for students. They must be prepared for this skill for their life as a part of digital citizenship. This research aimed to develop curriculum and instructional manuals in media literacy for teachers to educate junior high school students. The methodology of this research was divided into 2 parts. The first part was documentary analysis and in-depth interview with 9 participants. Another part was 81 participants assessing the suitability of developing media literacy curriculum. The participants were students, teachers, parents, media scholars, civil society members, and representatives from relevant consumer protection agencies. From the study, this research was revealed in 2 parts. The first part of the study contained the scope of content in media literacy for junior high school students that was chunked into 7 modules and the curriculum structures including course descriptions, learning objectives, content, learning activities, instructional media and evaluation. Another part, assessment of the suitability of the developed curriculum showed that every module reached the very appropriate level with the suggestion to adjust the content into 6 modules to avoid redundancy content including Media Literacy, Media Ecology, Media Accessibility, Media Legal and ethics, Media Issues, and Media Literacy Participation. The media literacy curriculum has 6 modules. Each module contains course descriptions, learning objectives, content, learning activities, instructional media and evaluation will be hereafter studied the usage by teachers from 8 schools for junior high school students in the Central, Northern, North Eastern and Southern regions in Thailand.

Keywords: Media Literacy, Curriculum, High School Student

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Introduction

In the digital age, the media landscape is changing rapidly and immensely. The media, which is part of the social system, must be developed and adapted according to the advancement of information technology. The traditional media that are the source of information, including newspapers, radio, television, and magazines, have merged with technology like the Internet and are presented in a digital format, also known as online media with a variety of content and communication platforms.

In the digital environment, the growth of media usage behavior affects many positive outcomes, such as convenience and speed, variety of knowledge, a space for freely expressing opinions, etc. However, it can cause negative effects in society as well, if the user lacks skill and judgment in using media, especially among children and youth who use digital media the most and lack of skills to screen or distinguish between appropriate and inappropriate content.

According to a report from the 2018 DQ Impact Study by the Digital Economy Promotion Agency, Thai children are at 60% risk from online threats, higher than the average of 29 countries in the world studied. The most online threats or problems include cyber bullying, accessing pornography and discussing sex with strangers online, game addiction problems and being tempted to meet strangers (Digital Economy Promotion Agency, 2018).

Media literacy, which generally refers to the ability of citizens to access, analyze, and create messages in a variety of information (Christ and Potter, 1998), is an important concept that was addressed on the skills of citizens in this century. These four components - access, analysis, evaluation and content creation - together constitute a skills-based approach to media literacy (Sonia, 2004). Media literacy is a lifelong learning process and also an important factor in fostering active citizens who have the freedom to access and choose to receive information in order to have enough information to live and make decisions. They can also protect themselves and others from harmful, malinformation or inappropriate content (Silver, 2009).

Children and youth are important human resources. The learning process of children and youth has a direct impact on the development of children's and youth's potential as valuable human resources. Empowering youth with media literacy skills, especially digital media, therefore, is one of the characteristics of global citizens in the 21st century, to create quality digital citizens and live a safe online life. The definition that every country in the world expects for digital citizens is "citizens who use digital and social media understand the norms of appropriate behavior and are responsible for the use of technology." (Information and Communication Technology Center, 2021). The process of supporting learning in media literacy skills, then, is important to help encourage children and youth to grow up to be a citizen who understands various social phenomena, and live online in a safe, ethical and responsible way to others and the community. They also can select, analyses, and use the information received in a creative way as well as to produce appropriate content and media to drive or create social change.

In Thailand, the Office of the National Broadcasting and Telecommunications Commission (NBTC) has a mission to promote the rights, freedoms, and equality of people in access and usage, promote, and develop the ability of media consumers. The Office of the NBTC therefore recognizes the importance of promoting media literacy abilities for media

consumers, especially among the youth. Therefore, a study was conducted to develop curriculum and instruction manual on media literacy for junior high school students. This study aims to promote teachers in secondary school to have knowledge, understanding, and a variety of techniques or methods, and being able to use content or media literacy textbooks for effective teaching and learning management promoting knowledge and media literacy skills, focusing on the broadcasting and television industry.

Research Objective

To develop curriculum and instruction manual on media literacy for junior high school students.

Literature Review

Media Literacy Concept

The change from converging media is related to the way people live in society. One obvious thing is increasing in online media usage behavior. According to the Digital 2020 statistics report by We are social for the first half of 2020, it was found that 52 million Thais have access to internet media, or more than 75% of the total population. They spend an average of 9.1 hours on the internet and 75% of them use social media. In addition, the group of people who use the Internet the most per day, according to a survey by the Electronic Transactions Development Agency (ETDA) in 2019 is a group of students which uses up to 10.5 hours per day.

The change in communication technology brings an impact on people, content, media channels, and communication technology in different economic, political, legal, social, cultural and community contexts both desirable and undesirable effects. One of the key factors that determines the direction that the media will be used in a positive way or use it in a way that may cause problems and harm to society is media literacy (Chainan, 2021).

Media literacy is a concept that looks the media consumers as powerful and active audiences, consumer who does not accept the influence of the media. They do not judge the media as harmful but accept and use the media from a social standpoint, understand themselves, understand society, understand what the media has offer (Virojtrairatt, 1997). They are also able to analyze, critique, evaluate what the media has to offer and be able to choose to receive and use media content effectively (Baran, 2004).

Oranop na Ayutthaya (2020) viewed that the problems of media literacy nowadays come from two main causes, namely problems in the audience's competence, such as media skills. Understanding and thinking, analysis, etc., and problems in the environment such as media policies, roles of the media industry, etc. Audience's competence can be developed by supporting the education and media literacy skills both directly through educational institutions and indirectly through the promotion of various relevant agencies.

Media Literacy skills

Media scholars have introduced a media literacy concept, which generally refers to the ability of citizens to access, analyze, and produce a variety of information. The definition of media literacy according to the conceptual framework of UNESCO is the ability to access, analyze,

critique, evaluate the media, and produce our own media to communicate in many forms. In addition, media literacy also includes educational activities to develop critical analysis skills and create opportunities for media access (Yenjabok, 2009).

In the age of digital media, academics have extended the concept of media literacy to cover new media. Hobbs (2010) referred to the competence of media and digital literacy as: access, analyze and evaluate, create, reflect, and act.

1. Access: searching and usage skill for the media and technology and usage of information that is appropriate and important to others.
2. Analyze and Evaluate: understanding media content and using critical thinking to analyze the quality, honesty, and credibility of the media and consider the consequences of media content.
3. Create: construct or create media content and have confidence in expressing one's thoughts by being aware of the purpose, audience, and techniques of creating.
4. Reflection: is a socially responsible and ethical application of the media to express one's identity and experience.
5. Act: working individually and collectively task to share knowledge and solve problems at the family, work, community level, including participation as members of local, regional and national communities.

The National Broadcasting and Telecommunications Commission (NBTC) has proposed the concept "Access, Understand, and Participate Skills", which is a guideline aimed at creating citizens to have media literacy under the framework of the office. "Access" means having the skills to use technology that is appropriate for oneself and others. "Understand" is analysis, asking questions, evaluate information with 5 key questions and media literacy concepts. "Participate" involves participatory action in create content responsively, monitoring and reporting complaints and participate in the campaign building a citizen network that can drive to create some change in the society. In this study, to develop curriculum and instruction manual on media literacy for junior secondary school students, the media literacy competency framework will be used according to the guidelines of the Office of the NBTC.

Curriculum design

In order to achieve the goal of education, the curriculum is a tool to achieve the goal. Applying of media literacy to study in the educational system has to combine knowledge of both the components of media literacy skills and the design of the curriculum. Curriculum is important for teaching and learning because it is a plan or a guideline for educational management that provides knowledge and experience including cultivating attitudes, values, and practices for students in order to receive an education that efficiency and effectiveness (Roaprapan**,** 2015).

The curriculum must have the elements in its structure. Therefore, it can be used to organize learning experiences effectively. The internal structure of the curriculum is an important component. This will help to understand the scope of the course more clearly and to indicate how the course will be implemented. Tyler (1949) identified that the course components should consist of 4 main components, including 1) objectives 2) content 3) organizing learning activity 4) evaluation.

Conceptual framework
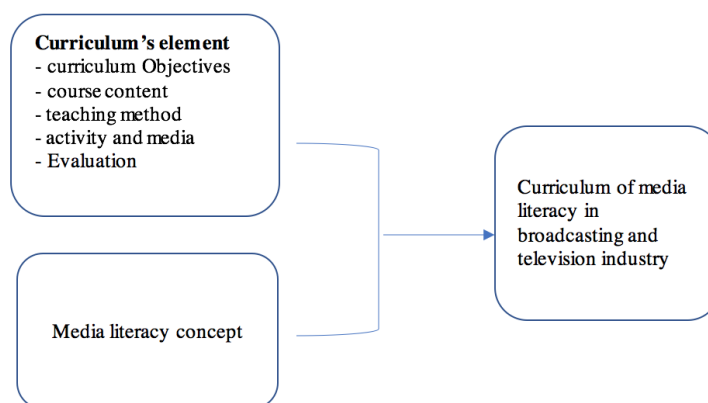
Figure 1: Conceptual Framework

Methodology

In this study, both qualitative and quantitative research methods were used. Qualitative research consisted of document analysis and in-depth interviews. Document analysis technique was conducted for analyzing papers related to media literacy and teaching method then used the information that had been synthesized as a preliminary guideline in the development of media literacy skills of youth.

In In-depth Interview, 9 participants were in education specialists, broadcast and television expert, media literacy scholars, civil society representative, and teachers. The question guideline collects the answers about the characteristics or necessary skill indicators to become an active media consumer in Thailand, development of learning skills tools, and content in the curriculum for learning media literacy skills. Survey research as the quantitative method was designed for assessing the suitability of media literacy textbook and teaching activities manual for junior high school. The 81 respondents comprised of students, teachers, parents, media scholars, civil society members, and representative from relevant consumer protection agencies across the country. The suitability assessment uses a 5-level rating, including: 5= Most Suitable, 4= Very Suitable, 3= Moderately Suitable, 2= Slightly Suitable, 1= Least Suitable. Data analysis used descriptive statistics, which are mean and Standard Deviation. Interpretation of evaluation criteria are 4.51 – 5.00 = most appropriate, 3.51 – 4.50 = very appropriate, 2.51 – 3.50 = moderately appropriate, 1.51 – 2.50 = slightly appropriate, 1.00 – 1.50 = least appropriate.

Results

The results of this research were divided into 2 parts, i.e., The first part was the scope of Media Literacy content and the curriculum structure, and the second part was assessing the suitability of media literacy textbook.

Part I: The scope of the Media Literacy Content and the curriculum structure

As Hobbs (2010) referred to the competence of media and digital literacy as: access, analyze and evaluate, create, reflect, and act. It's shown the content that scoping in Media Literacy in 7 modules i.e.:

Module 1: Media Literacy
Module 2: Media Ecology
Module 3: Media Accessibility
Module 4: Media Owner
Module 5: Five Critical Questions
Module 6: Media Assessment
Module 7: Media Literacy Participation

After scope the media literacy content, the curriculum was drafted with the course description, learning objectives, content, learning activities and evaluation in each module.

Part II: Assessing the suitability of media literacy textbook

items	suitability	
	mean	meaning
Module 1: Media Literacy	3.90	Very appropriate
Course description	3.81	Very appropriate
Learning objectives	3.71	Very appropriate
Content	3.54	Very appropriate
Learning activities	3.53	Very appropriate
Evaluation	3.51	Very appropriate
Module 2: Media Ecology	3.83	Very appropriate
Course description	3.85	Very appropriate
Learning objectives	3.69	Very appropriate
Content	3.62	Very appropriate
Learning activities	3.53	Very appropriate
Evaluation	3.53	Very appropriate
Module 3: Media Accessibility	3.86	Very appropriate
Course description	3.75	Very appropriate
Learning objectives	3.67	Very appropriate
Content	3.56	Very appropriate
Learning activities	3.51	Very appropriate
Evaluation	3.57	Very appropriate
Module 4: Media Owner	3.75	Very appropriate
Course description	3.70	Very appropriate
Learning objectives	3.65	Very appropriate
Content	3.55	Very appropriate
Learning activities	3.57	Very appropriate
Evaluation	3.60	Very appropriate
Module 5: Five Critical Questions	3.86	Very appropriate
Course description	3.74	Very appropriate
Learning objectives	3.73	Very appropriate
Content	3.65	Very appropriate
Learning activities	3.65	Very appropriate
Evaluation	3.70	Very appropriate
Module 6: Media Assessment	3.93	Very appropriate
Course description	3.73	Very appropriate
Learning objectives	3.67	Very appropriate
Content	3.63	Very appropriate

items	suitability	
	mean	meaning
Learning activities	3.63	Very appropriate
Evaluation	3.60	Very appropriate
Module 7: Media Literacy Participation	3.89	Very appropriate
Course description	3.73	Very appropriate
Learning objectives	3.62	Very appropriate
Content	3.67	Very appropriate
Learning activities	3.68	Very appropriate
Evaluation	3.62	Very appropriate

From the table revealed that Media Assessment is the highest suitable module, but every module is in the range of the high suitable for using with junior high school student.

After studied the suitability of media literacy textbook, the curriculum was been grouping into 6 modules which module 5: Five critical questions blended into module 1: Media Literacy and using in every module. So, the Media Literacy curriculum has 6 modules that each module consist of course description, learning objectives, content, learning activities and evaluation in each module. The curriculum structure includes Objectives, Content, Learning Activities, Media and Activities and Evaluation.

The curriculum objectives are
     - To gain knowledge in media literacy to junior high school student.
     - To enhance Media Literacy skills to junior high school student.

Content
The content of Media Literacy curriculum after studied shown that there are 6 modules including,
Module 1: Media Literacy -- Description Important Components of Media Literacy Skills Media Information and Digital Literacy and Digital Quotient DQ
Module 2: Media Ecology -- Description Components feather of media ecology Media Ecology to Media Literacy Media Disruption Dynamic of Media Category of Media
Module 3: Media Accessibility -- The channel of media in every category for example printed media electronics media digital media, media objectives and understanding in media category
Module 4: Media Legal and ethics -- Customers' rights, Media Legal in content and advertising Laws relating to media consumer, Media ethics
Module 5: Media Issues -- Knowledge and understanding in fake news, Hate Speech, Sex Language Violence Representative (SLVR) and Cyberbullying
Module 6: Media Literacy Participation -- Media Producer, Media publisher and creating content in various context, adaptation and creation of changing

Learning Activities
The learning activities in the curriculum are the onsite with active learning that let student has participation in classroom both pair work and also group work.

Media and Activities
The curriculum provides media both digital media files and instructional media to use in each module following the Learning activities. The example of Media and activities are Games, Clip VDO, Case study.

Evaluation
The student who will pass this media Literacy curriculum must take at least 3 modules.

Conclusion

Media literacy is an ability to understand the influence of the media, get access, analyze, evaluate, and actively interact with mass media with a critical thinking strategy and complete information (Wood, 2006). In the digital age where media users can also be content creators, media literacy skill provides users being able to protect themselves from getting influenced by media content and are able to use media responsibly. One way to develop media literacy is by providing knowledge for people in educational institutions. Teaching and learning media literacy, especially for students, will encourage media users actively and mindfully use the information during exposure to media messages. So, The Media Literacy Curriculum that developed in this research is one of the tools to help us enhancing media literacy skills for junior high school students. The curriculum that is developed includes the objectives of curriculum, content, learning activities, media and activities, and evaluation. For the objectives, this curriculum aims to gain knowledge of media literacy for junior high school students and to enhance Media Literacy skills for junior high school students. About the scope of content in the curriculum there are 6 modules, including Module 1: Media Literacy, Module 2: Media Ecology, Module 3: Media Accessibility, Module 4: Media Legal and Ethics, Module 5: Media Issues and Module 6: Media Literacy Participation. The curriculum also provided the guidelines for learning activities, media and activities both online and offline instructional media, and the method of evaluation. The Media Literacy Curriculum can drive the student to gain knowledge and skills in Media Literacy to literate junior high school students using the media.

Acknowledgement

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Remaking Higher Education?: A Content Analysis of the Media Discourse on Online and Blended Education in India

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Abstract

India has the second largest higher education system in the world with 993 universities, 39931 colleges and 10,725 Stand Alone Institutions and improving higher education is a major policy priority of the government. Online education has emerged as the preferred form of education in the COVID-19 milieu. The media has served an important platform for debates on online education in India, and this debate got intensified during the two pandemic years. This paper undertakes a detailed analysis of the media discourse surrounding online and blended education in India. It identifies a focus on cost, access and learning outcomes as salient features of this discourse. The paper uses Framing theory to categorize this discourse into an "access-outcome" frame. The paper situates this access-outcome frame into a broader milieu of global discourse on online education. The authors observe that, given certain political (right-wing government) economic (neo-liberal) and social developments (rise of the new, aspirational middle class, education as product and institutions as service providers) in India, the aforementioned access-outcome frame is likely to strengthen over time with continued positive coverage by the media and enabling state policies.

Keywords: Online Education, Blended Education, Covid 19, Higher Education, Media Discourse

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Introduction

In his collection of essays on higher education, Shapiro (2005) argues that 'a crisis in education is usually caused by a crisis in society that calls into question many existing ideas regarding the central issues of knowledge, culture, and society.'(p.7) As the current Covid pandemic continues unabated across the globe, academics and policy makers are confronted with existential questions related to the future of education, work and relationships.

'Online learning'[1],also referred as 'web-based education' and 'e-learning' can be broadly defined as 'the use of the internet in some way to enhance the interaction between teacher and student'. Online delivery covers both asynchronous forms of interaction such as assessment tools and the provision of web-based course materials and synchronous interaction through email, newsgroups, and conferencing tools, such as chat groups (p.293) (Curtain 2002 in Singh and Thurman 2019).

As compared to a traditional, in-person course which can deliver up to 29% of its content online, an online course usually delivers at least 80% of its content online. Blended courses with their online and in-person components constitute a middle path with between 30 to 80% of their course content delivered online (Allen and Seaman 2015)[2].

The Covid crisis has strengthened the case for online and blended education in India. Leading experts have reckoned that the higher education system emerging out of India's national lockdown (state-ordered confinement of citizens in their homes from 21st March to 31st May 2020 to reduce pandemic casualties) is likely to be permanently altered by online and blended education with a two-tiered system consisting of social science courses taught online and only professional courses such as engineering taught on campus (Anilkumar 2020) Since March 2020, a number of articles in the media have focused on the merits and drawbacks of online and blended education in the Indian milieu.

This paper undertakes a detailed analysis of the media discourse surrounding online and blended education in India. The authors analyse articles published in English language print media over two years, and find that cost, access and learning outcomes are salient features of the media discourse.

Higher Education in India: An Overview

The Indian higher education system comprises of 993 universities, 39931 colleges and 10,725 Stand Alone Institutions as of 2018-19 (AISHE 2019) (AISHE 2018) making it the second largest in the world (John and Hasnain 2020). The number of universities and colleges has increased steeply from the 1970-71 base of 103 universities and 3603 colleges respectively

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[1] Other definitions refer to online education as distance education which is defined by Moore and Kearsley (2012: 2) as "teaching and planned learning in which teaching normally occurs in a different place from learning, requiring communication through technologies as well as special institutional organization". See Moore, M., & Kearsley, G. (2012). Distance education: A systems view of online learning (3rd ed.). Belmont, CA: Wadsworth.

[2]Blended learning attempts to remedy the impersonal, socially distanced nature of online learning by supplementing online lectures and activities with in-person lectures on campus while also providing access to Faculty, peers and campus resources such as libraries (Trines 2018).[2] See Trines.S. "Educating the Masses: The Rise of Online Education in Sub-Saharan Africa and South Asia," *WENR*. 14 August 2018. https://wenr.wes.org/2018/08/educating-the-masses-the-rise-of-online-education

(Allen, 2015; Trines, 2018; Sheikh, 2017). By comparing these figures to pre-independent India which had only 20 universities and 591 colleges, Bhoite (2009) highlights the massive growth in higher education institutes in the country.

However, this dramatic increase in capacity including the establishment of 18,000 colleges between 2008 and 2016 at a rate of more than 6 colleges per day (Trines 2018) has proved insufficient to meet the massive education demands of a country with the world's largest cohort of young people with 600 million people under 25 years old (Jack 2018). India allocated 3% of its total GDP to education in 2018-19 (Gupta 2019). At the level of access, India requires 700 new universities, 35,000 colleges and vocational training institutions with 40 million seats to meet the growing demand for higher education (IBEF, 2017; Trines, 2018).

According to the latest All India Survey on Higher Education (AISHE) report of 2018-19, the Gross Enrolment Ratio (GER) in higher education in India was 26.3%, with the GER for males at 26.3% and the GER for females at 26.4%. India's new education policy aims to increase the GER in higher education, including vocational education to 50% by 2035. Thus, higher education institutes in India have viewed education policy primarily as a matter of ensuring greater access to the maximum number of people.

The growth of online education in India

The evolution of Massive Open Online Courses (MOOCs) that were initially free (but now monetized), without formal credit and open to students around the world has been an important trend in the overall rise of online education in recent years (Pappano 2012; Trines 2018). The global online education market is expected to register brisk growth from $159.52 billion in 2017 to $286.62 billion by 2023 at a compound annual growth rate of 10.26% (*Businesswire* 2018).

In keeping with global trends, the Indian online education market is poised for brisk growth from $250 million in 2016 to $2 billion in 2021 with paid users also rising rapidly to 9.6 million (Paliwal 2020). More optimistic estimates project the overall online education market size to expand by $14.33 billion from 2020-2024 (*Businesswire* 2020). Ed-tech start-ups in India are projected to grow rapidly from $39 billion in 2018-19 to $220 to $360 billion by 2026 (Nagarajan, *Frontline*, 2020).

Online learning corporations such as Coursera, which currently offers 3,800 courses for free (*Times of India* 2020) regard India as a 'high-focus growth market' (McKenzie 2020) India currently accounts for Coursera's second largest revenue stream with 1.5 million out of the total 21 million registered users worldwide (*Economic Times* 2016) and is the world's third largest online market with 1.3 million distance learners (*Indian Express* 2016).

India's finance minister recently launched the PM eVIDYA programme to bring together existing on-air, online and digital education programs (Farooqi 2020) thereby providing "multi-mode access to digital/online education" (Nagarajan, *Frontline*, 2020) and permitted the country's top 100 universities to start online courses without state permission by May 30 (Nagarajan, *Frontline*, 2020).

Theoretical framework

This study is guided by the epistemological framework of constructionism that posits that 'meaning is not discovered, but constructed, and different people construct meaning in multiple ways, even in relation to the same phenomenon' (Crotty, 1998:9). By examining the emerging media discourse on online and blended education, we have attempted to shed light on the construction of the problem of higher education (high costs, lack of access and poor learning outcomes), and recommended solution (online and blended learning).

Framing theory is summarized to lay the theoretical base to later understand and organize the dominant meanings ascribed to higher education (especially online education) in the contemporary media discourse in India. Framing's power lies in its explanatory assumption that most discourses consist of texts, catchphrases and metaphors, visuals, moral appeals, slogans and symbols. Actors looking to advance an agenda are able to compile elements of such discourses into 'packages' of meaning or 'interpretative packages' (Gamson and Modigliani1989) that compete to influence public opinion and policy. Such assemblages of meaning are called frames.

A particularly important part of the framing process 'involves selection and salience.' (Entman 1993). For a stakeholder looking to advance a particular agenda, to frame is to 'select some aspects of a perceived reality and to make them more salient in a communicating text.' This highlighting and privileging of certain aspects in the complex terrain of reality over others is done to 'promote a particular problem definition, causal interpretation, moral evaluation and/or treatment recommendation' (Entman 1993).

According to deVreese (2005), framing involves a 'communication source presenting and defining an issue' and is also concerned with the manner in which communicative processes result in the construction of certain meanings. Contesting parties often generate counter-frames through the 'dialectic' process of contestation with their rivals (Price, Nir, and. Cappella 2005).

Frames are akin to 'objects people possess in their heads' which allow them to make sense of reality (Hulst and Yanow 2014). These 'objects' or mental structures 'that shape the way we see the world' (Lakoff 2004) are also understood as 'anticipatory schema' which is a product of people's life histories, psychological inclinations and interactions in society (Gamson and Modigliani 1989) (Baresch, Hsu and Reese 2012) (Snow, Rochford, Worden, and Benford. 1986).

The concept of framing has been used in a wide range of studies including the framing of immigration by political parties in Western Europe (Helbling 2013), influence of sex on sports coverage by male and female sports journalists (Kian and Hardin 2009), and framing of homosexuality in Singapore (Goh 2008), paid domestic work in Spanish state discourses (Peterson 2007) and framing by the news media of mass shootings and serious mental illness in the US (McGinty, Webster, Jarlenski and Barry 2014).

Methodology

The paper conducts an analysis of the contemporary media discourse on online and blended education in India. Following Foucault (1977), Ball (2006) argues that discourses are about 'what can be said, and thought, but also about who can speak, when, where and with what

authority, thereby creating certain possibilities for thought.' (p.14) By examining the current discourses surrounding higher education in India, the authors aim to shed light on the ways in which online and blended learning is being normalized.

In this paper, contemporary discourse in media refers to English language articles published in newspapers, digital news outlets and websites of English news channels[3]. As we argue earlier in the paper, the subject of online and blended education attracted an unprecedented amount of attention in the media when the pandemic forced schools and universities to switch to remote learning in March 2020. And, hence, for this paper, we have chosen the articles published in the time period of March 1, 2020 till March 2022. However, we acknowledge that this is an emerging discourse, and future studies can shed more light on the ways in which media representation of online and blended education changes the landscape of higher education in the country.

The authors covered all the articles that focus on the issue of online and/or blended education in higher education in India. Search terms such as 'online education in India', 'e-learning in universities', 'blended learning in higher education in India', 'digital education in Indian universities', and 'online learning in higher education institutes in India' were utilized to capture a wide range of articles published in newspapers, digital news outlets and websites of news channels. The search resulted in a total of 80 articles published on this topic in two years.

Influential sections of the education elite including university vice-chancellors, deans, professors, administrators and education company leaders are featured in such articles, providing a cross-section of elite opinion on online education in the COVID-constrained milieu. Other articles comprising the media discourse also rely on the key conclusions of recent surveys conducted by major universities that look at the efficacy of online classes in Indian higher education institutions (HEI). Finally, the views of the state elite including Chairman of the University Grants Commission (UGC), Education Minister and Prime Minister are also covered in some articles.

The authors carefully read the articles without any pre-defined categories, and noted the messages, and nuances in each article. A thorough qualitative content analysis involved searching for themes and patterns in the articles. Comparisons and contrasts between and among articles was also done in order to enhance understanding (Altheide & Schneider 2013). We also paid attention to more subtle and implicit meanings in the articles that sought to both endorse as well as criticize online and blended education. In the next section that lays out the findings, the paper discusses the features of the media discourse on online and blended education in India.

Findings

Contemporary media discourse on Online Education

The dominant contemporary media discourse on online education in India has framed it as the 'need of the hour' (Tribune 2020), 'saviour' (Gankar 2020), 'the future of education' (India Today 2020), and a 'new normal' (Tribune 2020; Goyal 2020). Online education is seen as a solution to four problems; a) equitable access, b) optimal learning outcomes, c) cost of

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[3] These channels include Times Now, CNN-IBN, NDTV, Republic TV and India Today.

delivery and d) flexibility. Commentators have listed several benefits of online education including reduced costs, ability to transcend the limitation of the physical infrastructure, involvement of faculty from across the world, and flexible learning schedules (India today, 2020).

Cost, access and flexibility

The leading discourse in the English language media has framed the higher education problem in the country as primarily one of access, and has endorsed a new mode of education (online) with its associated technological infrastructure (high speed internet) as an important and necessary step towards increasing the Gross Enrolment Ratio in Universities and colleges. Multiple articles in the media have elaborated on the role of online education in solving the problem of access in higher education. Articles have quoted founders of Ed tech companies who have enthusiastically called for universities to embrace online education. For instance, one of the pieces in Business standard quotes Ronnie Screwvala, founder and chairperson of UpGrad who believes that online learning can enhance India's poor gross enrolment ratio of 26 %, and ed tech companies have the potential to 'take higher education to tier 2, 3 and 4 towns and even rural India'. In another article endorsing the blended model, Singal (2021) quotes Raghav Gupta, Managing Director, India and APAC, Coursera believes that a blended model will 'allow universities to scale, combining the benefits of on-campus and online programmes to serve a vast student population'.

The discourse surrounding online learning has also focused on the issue of cost, with commentators arguing that online programs involve lesser fees and reduced relocation costs for students (Singal, 2021), and students also end up saving on rent, hostel fees and study material (Kumar, 2021, The Hindu). Commentators have added that these reduced costs via online education has the potential to enhance the social mobility of those who could not easily access quality education from premier HEIs (Kumar, 2022). Evidently, commentators in the media have also championed the new educational policy for its thrust on developing digital infrastructure for a future in which online and blended learning will have significant presence in higher education across the country (Goyal, India today).

Some of the articles in media also quote academics who championed the move towards online education during the pandemic. In a piece in the Business Standard, Farooqui (2020) quotes Rupamanjari Ghosh, Vice-Chancellor, Shiv Nadar University, who insists that while 'conventional face-to-face education will not become obsolete', blended model is the future because online learning 'offers flexibility, cost savings, standard-quality content, and knowledge management to the students." Other articles written in the media by influential academics make a similar case. M Jagadesh Kumar, the Vice-Chancellor of Jawaharlal Nehru University who insists that campus-based 'antiquated classroom practices can be buried' post the pandemic, and argues that the 'time has never been better for HEIs to re-invent themselves' by adopting online education. He adds that although the current Internet penetration rate in India is 50%, it is rapidly rising due to National Broadband Mission's (NBM) concerted efforts to provide access to each village by 2022 (Kumar, *Hindustan Times*, July 23, 2020).

Articles in the media also allude to the cost advantages of online education as virtualized classrooms have the ability to achieve the goal of equality and equity via lower costs (Ramaswamy 2020). It is claimed that learning outcomes and skills can be transferred at a low cost in an IT-enabled environment to a larger number of students than the traditional

classroom. An important enabler of this IT-environment is seen to be achieved through massive investments in the telecom infrastructure to ensure 'seamless connectivity' (*The Economic Times*, September 21, 2020).[4]

Moreover, the flexibility afforded by online has been emphasized in multiple articles published over the past two years. Online education allows a child to study at their own pace and also gives them a chance to personalise their curriculum, neither of which is possible in a typical offline learning system (India Today, 2021).

Overall, online education's cost advantages are linked to a combination of technological, pedagogical and organizational innovations. And finally, online education boosters in the media have also emphasized the perceived nimbleness and increased plasticity of online education which enables the provision of several 'significant and unique affordances' that allow for 'customization of learning, remote collaboration, just-in-time scenarios, continuous assessment and blended learning' (Wilcox et al 2016). This flexibility is seen as a crucial enabler to prepare students for the new 'gig' economy with its contractualized, temporary jobs. For example, P.B. Sharma, Vice Chancellor of Amity University has positioned online education as the ideal solution for a future job market which may increasingly require 'working from home, sharing the workforce time for multiple tasks and even working for multiple employers.' (Wadke 2020). Such a gig economy needs a gig education model based on an 'anytime, anywhere, anyone' approach, to be delivered by online courses (John and Hasnain 2020). Proponents also point out the 'zero misses' advantage of online education since teaching content can be recorded for later reference (Arora 2020).

Learning outcomes

The discourse surrounding higher education also covers the issue of learning outcomes, with commentators asserting that satisfactory learning outcomes can be achieved in higher education without either the traditional campus or classroom-based, face-to-face discussions (Deshpande 2020; India Today 2020; Majumdar & Pathak 2020). Attention is drawn to the sub-optimal learning outcomes in Indian universities due to student passivity in the existing physical mode of education. The 'visiting faculty model' of universities inviting outside experts to the physical campus to teach in a 'concentrated burst' is also criticized for its sub-optimal learning outcomes. Learning outcomes are claimed to be maintained or even enhanced with online education while also ensuring democratization of access (Jesudasan 2020).

This discourse in the media has been helped by a shift in the policy which allows universities to adopt online courses without prior permission. According to UGC, "higher educational institutions having an accreditation score of 3.26 (in a scale of 4) and above or having a rank in top 100 best university category of National Institutional Ranking Framework (NIRF) shall be permitted to start full-fledged online programmes without prior approval."

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[4]Massive infrastructure construction including 3 million kms of optical fibre cables, doubling of towers to 1 million and increasing speeds of up to 50 Mbps have been identified as factors favourable to the exponential growth in online education (Kumar, *Hindustan Times*, July 23, 2020).

Articles quote research to bolster their point about the effectiveness of online learning. Here is an example from an India today article written by a founder of an Ed Tech company (2021):

> Some research shows that on average, students retain 25-60% more material when learning online compared to only 8-10% in a classroom. This is mostly due to the students being able to learn faster online; students engaged in e-learning require 40-60% less time to absorb a concept than they do in a traditional classroom setting.

Another piece by the vice chancellor of KREA university quotes a 2017 study by the National Bureau of Economic Research in the US confirmed that "students performed just as well with blended learning—where online learning supplements, and not replaces, conventional instruction—as they did with traditional classrooms. It's there, it works, and yet there has been no compelling reason for universities to embrace it—until now."

The appeal of blended education

Alongside the dominant discourse with its tone of digital triumphalism around the future of online education, lies an alternative discourse also comprising of diverse commentators that has expressed reservations about the capacity of online education to achieve its claimed goals of access, outcome, cost savings and flexibility. These reservations stem from the very nature of online education including its greater dependence on technological infrastructure for smooth functioning in a country where there is a massive digital divide that maps on to deep class, caste, gender and language divides.

India's rising but still inadequate internet penetration rate of 31% with a total of 409 million users as of 2019 (Farooqui 2020), is identified as one of the major reasons for creating an enormous digital divide. Further, the digital deficit is fractionated into an access-deficit of internet connections across urban and rural households (42% versus 15% with overall connections at 24%) (Wadia 2020) and a computing device ownership deficit across urban and rural households (23.4% versus 4.4% with overall ownership at 11%).

Commentators have noted that very few Indian universities have reliable internet connectivity, secure access to the internet and the required bandwidth (John and Hasnain 2020). Several survey results are quoted in major agenda-setting newspapers such as the *Indian Express* such as the one by the All India Democratic Students' Organisation involving 3980 engineering students from 210 colleges using online learning with 97.1% not in a state of readiness to take exams, 91.2% unable to follow classes being conducted and a majority 77.3% not being able to attend classes (D'Souza 2020).

Only around a quarter of Indian households were even able to access the Internet including through smartphones with the figure even lower for rural households at just 15 out of 100 (Nagarajan 2020). Criticism has also been levelled at the heavily technology-dependent evaluation system required for online education courses and their misalignments with the Indian milieu. Delhi University's online final exam where students have complained of website crashes, difficulties in answer submission, non-working of grievance cell email addresses, privacy intrusion and double-submission of assignments on intermittently working submission portals has been highlighted (Singh 2020).

Thus, online education is seen as a technology-heavy mode of education requiring large system-wide requirements including accessible and reliable internet, reliable electricity, availability of laptops and mobile phone devices and cheap data plans. A deeper critique is levelled at the very nature of online (excluding blended) education as 'monotonous and exhausting to talk to a computer screen with occasional interruptions by disembodied voices' (*NDTV.Com* 2020) with limited capabilities of technological fixes to overcome this disembodied structure.

In this context, the discourse on blended education arises as a 'bridge' discourse between dominant discourse supporting online education and the more subordinate discourse expressing reservations over its capacity to bridge the digital divide in the country. Blended education has been repeatedly supported in order to not completely compromise the 'psychological and the physiological' benefits of a traditional education. It has been suggested that blended education be embraced as the 'new normal' with an important part focusing on 'skill-based learning'(Basu, *The Economic Times*, September 28, 2020). In another article endorsing the blended model, Singal (2021) quotes Raghav Gupta, Managing Director, India and APAC, Coursera believes that a blended model will 'allow universities to scale, combining the benefits of on-campus and online programmes to serve a vast student population'.

The potential of hybrid approaches such as blended education in permitting 'more cost-effective and efficient utilisation of brick and mortar resources' to maximize institutional capacity, increase GER and enhance quality has been discussed at length in print media (Basu, *The Economic Times*, September 28, 2020) .Blended learning has also been justified on the grounds of flexibility it accords to students in terms of schedule, location independence, affordability, accessibility and increased scope for parental guidance and constructive intervention (*Telegraph*, October 20, 2020).The commentary has also criticized online education as being responsible for 'bored students and exhausted teachers' and the need for blended education to provide students vital in-class and peer-to-peer socialization to create confident learners (Pawar et al, *India Today*, July 2, 2020).

Blended learning in particular has been projected to endure past the Covid-crisis as it offers cost   savings, flexibility of learning, quality course content and management of learning resources that facilitates ease of student learning (Farooqui 2020). The discourse has also focused on the appropriate role for online education with some arguing that the right role of online education is in a blended format to 'supplement, support and amplify the techniques of face-to-face evaluation' (Deshpande, *The Indian Express*, May 27, 2020).

Discussion

This paper looked at the media discourse on online and blended education in India from March 1, 2020 till March 2022 using a variety of search terms, and focusing on a cross section of outlets. It found that the shape of the discourse by proponents of online and blended education skews towards a focus on maximizing access to the largest possible cohort of learners (at low cost) while also maximizing learning outcomes. Using the framing theory, this paper organizes this 'access-outcome'-centric focus of the discourse into an *access-outcome* frame. The frame can be understood as the result of a particular constellation of enabling factors in India. These include; a) the constraints imposed by the pandemic on traditional, campus-based education, b) the preexisting (albeit slower) growth of the ed-tech industry in the years prior to the pandemic, c) the increased adoption of neoliberal economic

policies (including the corporatization of education) by Indian government since 1991, d) the rise of an 'aspirational' Indian middle class which views education as a product and institutions as a service provider, the e) election of a right-wing government pursuing more market-friendly policies since 2014 and f) positive media coverage by an increasingly corporatized media. This constellation of enabling factors and the reinforcing feedback loops they have engendered are likely to remain in place for the foreseeable future, strengthening the access-outcome frame and its push for online-blended programs in higher education. The only recent complicating factor loosening the aforementioned constellation is the relaxation of constraints in the pandemic's aftermath and the return to campus-based education which has slowed the tremendous momentum of the thrust towards online education. As variants of the COVID-19 virus keep surfacing, the return to lockdown conditions could reinvigorate the aforementioned momentum. Furthermore, the path dependency created by various initiatives such as the National Digital University (understood as the concrete manifestation of the access-outcome frame) is likely to influence the shape of education discourse, reinforcing support for the *access-outcome* frame as well constraining the policy options of future governments from breaking out of the frame.

Concluding remarks

In this paper, we show that both the advocates as well as sceptics of online and blended education tend to view education through an 'access-outcome' frame which focuses on maximizing access to education while also ensuring satisfactory learning outcomes at a low cost. In a discursive environment dominated by such access-outcome-centric thinking, opposition to online and blended education will need to find ways to de-privilege the weightage accorded to access and outcome and to elevate alternative values that re-center the importance of traditional, campus-based education. Some of these values can include highlighting the benefits of the physical campus for increased female autonomy in a conservative society such as India (i.e. taking up residence in female hostels), the minimization of the digital divide resulting from in-person transfer of knowledge and mentorship between students (including poor and marginalized students, availing of affirmative action) and experienced professors, and finally the weakening of the caste and gender divides caused by the physical sharing of common facilities (dining, hostel, etc.) by students from across the socio-economic strata.

The consolidation of the aforementioned and other alternative values into a coherent alternative imagination and discourse would perhaps help to re-imagine online and blended education as an important (but ultimately secondary) tool supplementing the pivotal role played by the primary, in-person education system. Until such a time as this alternative imagination develops, the access-outcome framing of education and its constellation of enabling factors is likely to hold sway.

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Discord Between Transgender Women and TERFs in South Korea

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Abstract

This paper examines the discord between transgender women and trans-exclusionary radical feminists (TERFs) in South Korea, focusing on the dispute between feminists and anti-feminists. This paper introduces a conflict between those two groups in that TERFs believe transgender women highlight gender stereotypes and femininity, in contrast to radical feminists looking forward to the dissolution of gender, such as the "escape the corset" movement. Furthermore, this paper illustrates the experiences of personal and legal discrimination and well-known instances to show the oppression that trans women are undergoing. Finally, among these conflicts, the paper focuses on women-only spaces, including women's universities, which is one of the most controversial and significant problems. The study examines why females fear men's invasion, which leads TERFs to exclude transgender women from these spaces. I reviewed journals and news articles to refer to scholars' claims, analyze recent cases, and see public opinions for this paper.

Keywords: TERF, Feminism, Transgender, Gender

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Introduction

In South Korea, there are conflicts between transgender people and some radical feminists called TERFs. Although trans women's gender identity is female, TERFs often do not include them in the category of women and claim that trans women are against their eventual aims: the dissolution of gender and patriarchy. On the other hand, transgender people are alienated and experience discrimination against them in this situation. Thus, this paper will examine the discord between TERFs and transgender women in South Korea, specifically their claims, hardships, and the meaning of women-only spaces, to understand both groups' stances and further consider a more inclusive society.

Background

The National Center for Transgender Equality (2016) explains transgender as "a broad term that can be used to describe people whose gender identity is different from the gender they were thought to be when they were born." However, trans-exclusionary radical feminists (TERFs) reject transgender people, prioritizing women's rights and strongly opposing misogyny (Miller & Yasharoff, 2020). A researcher analyzed that radical feminists in South Korea consider that transgender people reinforce gender roles and gender images in society (H. Lee, 2019, pp. 178-180). They tend to exclude transgender people, especially trans women, from the female boundary.

Stances of TERFs

TERFs exclude transgender people since they deny the existence of gender identity.

Maya Forstater, a tax expert and a visiting fellow at the Centre for Global Development, posted on her Twitter that people cannot change their biological sex (Bowcott, 2019). One of her statements was, "There are two sexes. Men are male. Women are female. It is impossible to change sex. These were until very recently understood as basic facts of life" (Sullivan & Snowdon, 2019). As a result, in December 2019, she was "accused of using 'offensive and exclusionary' language in postings opposing government proposals to reform the Gender Recognition Act to allow people to self-identify as the opposite sex" (Bowcott, 2019) and eventually lost her job. After the judgment, J.K. Rowling, the author of the *Harry Potter* series, supported Forstater and claimed that forcing "women out of their jobs for stating that sex is real" is excessive and unfair, and people also criticized her for being exclusionary to transgender people (Sullivan & Snowdon, 2019).

1. Shared Experience of Misogyny

Likewise, Forstater and Rowling claimed unchangeable sexes and emphasized the protection of women's rights; TERFs in South Korea highlight severe misogyny. H. Lee (2019) states that young women's shared experiences of sexual assaults, misogyny, and hate crimes are the background of TERFs. For example, on May 17, 2016, a woman in her twenties was murdered by a 34-year-old man in a restroom near the Gangnam station (Online News Team, 2016). The case has been disputed about whether it is misogyny as a hate crime since the assailant stated during the police investigation that he committed the crime because he felt the victim had ignored him, even though he did not know her personally (Online News Team, 2016). H. Lee (2019) claims that the case triggered a lot of Korean women to be aware of feminism and define themselves as feminists. The unrest of women has increased since the

murder happened in a women's restroom, implying women cannot be safe even in female-only places. Several civic organizations gathered for the fifth anniversary of the Gangnam station murder on May 17, 2021, and they participated in the struggle to win the right to be safe from sex crimes, including digital sex crimes, dating violence, and sexual violence forced by power (News1, 2021). According to the researcher Seunghwa Jeong (2018), the 'biological female' category was initially defensively constructed rather than to exclude trans women due to anti-feminists who use transgender rights to attack feminism. Kim analyzes that trans women's femininity is regarded as exaggerated and wrong. Also, she states that radical feminists blame them, claiming that trans women cause confusion in the category of women and "re/produce" existing femininity (R-N. Kim, 2017, p. 126), contrary to radical feminism rejecting gender images.

Furthermore, there are more severe violent and abusive anti-feminism these days. An organization of feminists named "Haeil," which means tsunami in Korean, protested on August 22, 2021, against the politicization of anti-feminism (Chaigne, 2021). At the same time, an anti-feminist organization named "New Men's Solidarity" rushed into the protest, shouting assaulting words and threatening them. They surrounded Haeil with water guns and followed them, saying:

> Look at all of these feminazis! That's right, run away! At least you'll get a bit of exercise! … So you got water on you? Are you angry? God, there are so many insects here, there are so many. I'm going to kill the insects, they're insects, right? (The term 'insect' is used by some feminists to designate anti-feminists) … I heard that there were f*****g feminists here, I'm going to murder them all. (Chaigne, 2021)

Since New Men's Solidarity also live-streamed the situation, Haeil had to cover their bodies and faces to conceal themselves and protect their personal information. A member of Haeil, Hae-in Shim, explained the reason for concealing themselves that one of the most common cybercrimes against feminists is collecting and posting all of their personal information, including photographs, online for everyone to see (Chaigne, 2021).

2. Reasons of Exclusion

H. Lee (2019) analyzes that TERFs in South Korea are based on the perception that defining femininity as part of gender identity is misogyny, and "TERFs set the ultimate goal and reason of feminism as abolishing gender" (p. 179). However, Lee also states the irony of TERFs' claim that biological sex is more legitimate than gender identity and explains that TERFs claim transgender women reinforce gender images, gender roles, and stereotypes, in contrast to the movement called 'escape the corset.' This movement aims to reject the beauty standards of South Korea and the social pressure to conform (Kuhn, 2019). Therefore, many females participate in the movement by cutting their hair short, not wearing makeup, and wearing comfortable outfits rather than tight and short clothes. Eventually, those females have become the subjects of attack and abuse from anti-feminists. In an article named "Multi-layered gender perception among young men," the author specifies that young females growing up as feminist subjects are aware of usual misogyny and sexism, while males deny the context of structural sexism and strengthen anti-feminism (Choo, 2021). The author researched 3,435 males aged 19-34 living in South Korea and classified them into four types: request of conservatism, transformation, sameness, and acceptance of gender equality as a norm.
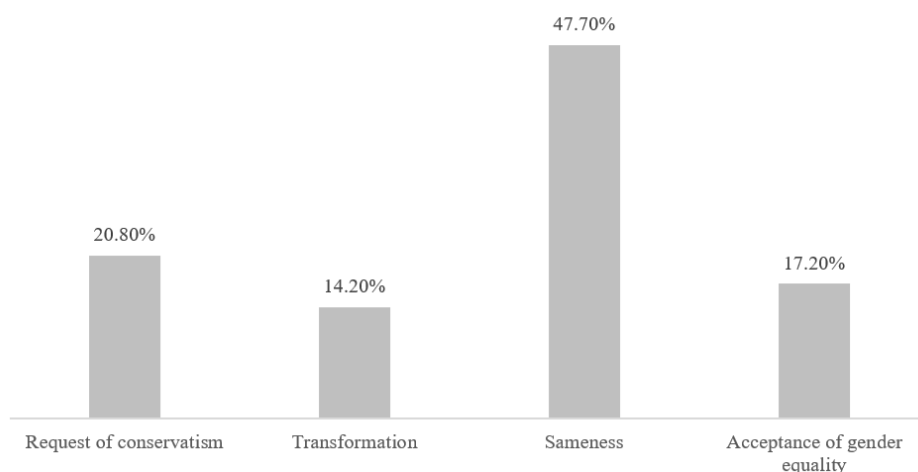
Figure 1: Four types of males in South Korea

First, 47.7% of men in the "sameness" type believe that gender relations are already equal and oppose the expansion of policies to increase the opportunities for women's participation. The author states that this type may look similar to anti-feminism, but they agree to expand the existing policies for violence against women and career breaks. Second, 20.8% are in the "request of conservatism" type. They oppose both passive and active policies against sexism. Choo explains that people of this type mostly reject traditional gender role norms but tend to regard women as immature beings that men should protect rather than compete with women. They also believe that the extant women's oppression is reasonable, and they resist change. Third, the "acceptance of gender equality as a norm" type has 17.2% of participants. They are friendly to expanding all policies for gender equality, including active actions for the rectification of sexism. Nevertheless, they have the highest acceptance of traditional gender role norms and are second-most defensive to the "request of conservatism" type about paternity leave and participation in housework, caring, and gender equality. Thus, the author analyzes that these people generally agree with various gender equality policies, regardless of their daily changes or attitudes toward gender role norms. Lastly, 14.2% of people are classified in the "transformation" type. They reject traditional gender role norms the most and believe that current gender relations are unfair to women. They are the friendliest to not only the policies for sexism or protecting and supporting women but also policies that promote men's change and participation (Choo, 2021). This study shows the perceptions about feminism and females these days, and eventually, it explains the existence of attacks and abuse against feminists in South Korea.

Specifically, a female archer named An San won three gold medals at the Summer Olympics as a South Korean player in 2021. However, she had to face thousands of online commenters accusing her of being a feminist because of her short haircut, and other female athletes with short haircuts experienced similar abuse (Young, 2021). Young, a journalist in the New York Times, quotes one comment on An's Instagram: "Are you sure An San isn't a feminist … She meets all the requirements to be one." She also quoted Wonjae Lee, a professor of social network analysis at the Korea Advanced Institute of Science and Technology, stating, "High-profile figures are often targeted by anti-feminists in South Korea" (Young, 2021). The anti-feminists have become more aggressive toward feminism and strictly inspect females, considering feminism a harmful and dangerous thought. In this context, Hyomin Lee (2019) pointed the radical feminist community is exclusive, particularly for male feminists, sexual

minorities, including transgender people, and other women excluded from radical feminism, in order to construct and protect priority for women. In regards to TERFs excluding transgender people, Lee indicates that TERFs define gender as socially and culturally determined sex and which highlights gender stereotypes. Thus, TERFs in South Korea insist that feminism and transgender rights are incompatible since they believe many trans women pursue typical femininity and reinforce beauty standards, such as having long hair and wearing sexually appealing outfits, which is contrary to the ultimate purpose of radical feminism and the 'escape the corset' movement to dissolve gender and patriarchy (H. Lee, 2019).

Stances of Transgender People

According to the statement of the American Medical Association (2018), "The AMA will oppose efforts to deny an individual's right to determine their stated sex marker or gender identity." AMA Board Member William E. Kobler explained that "Sex and gender are more complex than previously assumed" and emphasized the importance of acknowledging that an individual's gender identity and assigned sex from birth may not align. He also expressed concerns that the "narrow limit on the definition of sex would have public health consequences" for both transgender people and people who have intersex traits (American Medical Association, 2018).

1. Personal Discrimination

Transgender people in South Korea often face discrimination online and are even ridiculed or attacked. For example, there is a meme saying, "I am a trans cat because I feel I am a cat. If you cannot understand me, you are a trans cat phobia," mocking trans people (H. Lee, 2019, p. 182). Lee introduces several malicious comments and Twitter postings against transgender people and states that the significant reason TERFs deny transgender people's existence and lives is biology, specifically sex chromosomes. Following is a comment on YouTube:

> The biggest dilemmas: 1) If you think you are a black person, can you be a black person? 2) If you think you are a cat, are you a cat? 3) If someone considers themselves an armless disabled person and tries to cut off their own arm, would it be an identity, not a mental illness? 4) Why do you ignore the basic scientific common sense that chromosomes determine sex? 5) What is a woman's mind/spirit? I'll be a TERF until someone who can clearly answer these five questions appears. (H. Lee, 2019, p. 181)

This comment explicitly shows that one of the reasons TERFs deny transgender people's existence and lives is sex chromosomes. Namely, TERFs believe that biology is the absolute fact and common sense and emphasize the unchangeability of sex from birth. At the same time, they regard gender identity as an illusion and claim that "feeling" oneself as another gender regardless of biological sex is illogical. Moreover, TERFs argue that intersex people and transgender people are separate issues and criticize transgender people as they "cause intentional distortion as a basis for justifying their existence by bringing intersex issues that are irrelevant to them," specifically:

> Please let's get this straight, "sseu-kka" (a derogatory term against intersectional feminists). Intersexes like XO or XXY chromosomes are diseases, not another gender. They are called Turner syndrome and Klinefelter syndrome, and those people cannot

live normally. Stop making intersex gender and saying, "How do you explain this, TERFs?!"… You always bring intersexes as the evidence of gender identity and stop using intersexes as a shield. (H. Lee, 2019, p. 197)

Likewise, TERFs emphasize intersex and transgender rights are different problems since intersex shows medical symptoms as it is a genetic and physical disorder. In contrast, transgender people claim self-determination of their gender with no ground except their "mental gender" (H. Lee, 2019). Hence, ridicule and hate expressions are prevalent online, especially stressing that gender identity is not real and claiming that the only fact is the biological sex from birth.

2. Legal & Systematic Discrimination

The National Human Rights Commission of Korea (NHRCK) researched transphobia and discrimination in South Korea in 2020 and showed the practical hardships of transgender people. In this "Transgender Hate Discrimination Survey," 591 transgender people over 19 years old and living in South Korea participated in the survey online. The participants shared their experiences in nine areas, one of which was about gender recognition (Hong et al., 2020). Only 47 participants (8.0%) answered that they have already finished the gender recognition legally, 28 participants (4.7%) are progressing with it, and the rest, 508 participants (86.0%), have never tried it. 82 participants who have done or tried gender recognition stated five significant difficulties:
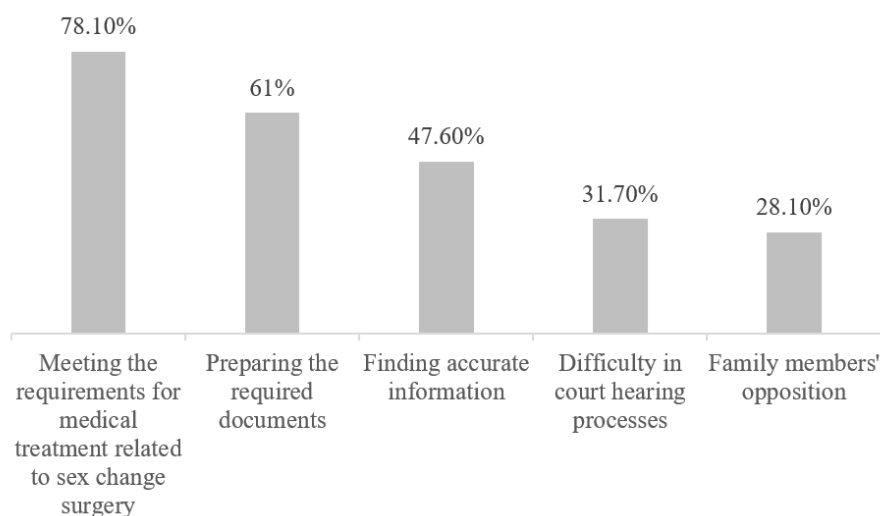
Figure 2: Hardships in gender recognition

Also, 78 participants answered that they experienced injustice during the process of gender recognition (Hong et al., 2020):
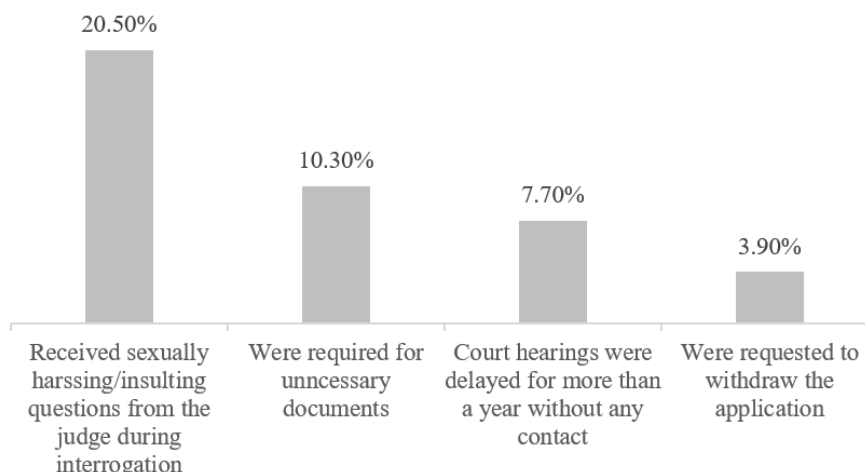
Figure 3: Injustice during the gender recognition

There are guidelines from the Supreme Court of Korea (2020) regarding gender recognition, which state required and optional documents. According to the guidelines, the courts may ask for the following (Supreme Court of Korea, 2020):

- A certificate of identification documents
- A psychiatrist's medical certificate or written appraisal that identifies the applicant as a transgender patient
- A letter of opinion from a sex-change surgery doctor that confirms that the applicant currently has a contrary appearance (i.e., look like) to biological sex
- A medical certificate or written appraisal verifies that the applicant does not currently have a reproductive ability and is unlikely to occur or recover in the future
- The applicant's growth environment statement and acquaintance's warranty

The NHRCK states that South Korea does not currently have an act regarding transgender people's gender recognition (Hong et al., 2020). Therefore, if a person wants to recognize gender, the court should allow revising the gender section on the certificate of family relations document (Hong et al., 2020). Since there is no separate act, the study states that the basis of legal gender recognition in South Korea is Article 104 (Rectification of Inadmissible Records Entered in Family Relations Register) of the Act On Registration Of Family Relations (Korea Legislation Research Institute, 2019).

In March 2021, there was a tragedy where a trans woman named Huisu Byeon took her own life at the age of 23 due to systematic discrimination. (W. Kim, 2021). She realized her gender identity during military life, and the Armed Forces Capital Hospital recommended getting surgery as she was diagnosed with severe gender dysphoria (W. Kim, 2021). Eventually, she got permission for a furlough abroad and underwent sex-change surgery (Yu, 2021). Although she wanted to continue her military service after the surgery, as her dream was to become a soldier, the Discharge Review Committee forced her to discharge from the army in January 2020, accounting for her mental and physical disorder, indicating the loss of the phallus and testicles (Yu, 2021). The army adhered to the decision, although the NHRCK exhorted the military to postpone the review for three months (W. Kim, 2021). As a result, Byeon filed a lawsuit to cancel the discharge at the Daejeon District Court on August 11, 2020, with the help of the "Joint Countermeasure Committee for the Reinstatement of Transgender Soldier Byeon Huisu." The UN also sent a document to the Korean military that

forcing her discharge was an abuse of International Human Rights Law. The court finally set the court date, six months after Byeon's lawsuit was received, to April 15, 2021. Hyungnam Kim, the secretary-general of the Military Human Rights Center, expressed his grief about Byeon's suicide and about that she could not stand in court due to the indifference and unfairness of both the executive and judicial branches. After the story of Huisu Byeon became well-known to the public, the Minister of National Defense articulated the necessity of studies about the military service of transgender people on March 16, 2021, in the National Assembly Defense Committee (W. Kim, 2021).

Female-Only Spaces

1. Definition & Necessity

Sheila Jeffreys, a representative radical feminist of the United Kingdom, examines separatism and emphasizes the importance of women-only spaces in her book, *The Lesbian Revolution: Lesbian Feminism in the UK 1970-1990* (2018a). Separatism was applied in the early 1970s in the UK across the Women's Liberation Movement (WLM). The author explains that the development of female-only spaces is the most fundamental form of separatism. According to the author, "any attempt to create women-only space is challenged and sometimes threatened by men's rights activists and men who transgender" these days (Jeffreys, 2014, as cited Jeffreys, 2018a, p. 55). The author also emphasizes the necessity of women-only spaces. Specifically, she expresses concerns that women would not be able to articulate the challenging and critical thoughts of men if men, the oppressor who "interrupt, get upset, demand women's loyalties or even threaten violence or exposure," are present (p. 59). In another book, Jeffreys (2018b) states that when claiming female-only spaces, the premise is to define 'women' as a political category formed by patriarchal oppression resulting from the experiences of living as a woman under male supremacy. She included living with a woman's body and how behavior patterns, such as menstruation or childbirth, that women will or have experienced in reality are constructed in a male-supremacist society as those experiences.

2. Korean Female-Only Spaces

There is increased interest in female-only spaces nowadays in South Korea as well, and hence, diverse women-only spaces are emerging nowadays, including parking areas, lounges, taxicabs, libraries, and fitness centers. There are, nonetheless, conflicting opinions that those spaces are reverse discrimination and, in contrast, that they are for women's safety. From the stance of advocates, the sex crime rates against women are considerably higher than for men. According to a report from the Korean National Police Agency (2021), about 92.29% of sex crimes victims were female, which is 20,041 cases out of 21,717 cases, and it states that about 40.27% of sex crimes happened in familiar places in daily lives. In this context, a news article states that women-only facilities are reasonable for women's safety and emphasizes insight into the facilities' purposes and backgrounds (Democratic Press Citizens' Union, 2019). According to an article named "Women-only Space," those spaces started to be constructed in the late 1990s when women's social achievements were visualized and became issues in Korean society (Ko, 2016). The social successes of females, such as passing national examinations, entering universities, and getting a job instead of merely keeping the house, were interpreted as men's ordeals or crises. Feminist movements and women were eventually blamed, primarily online. The author explains that women-only spaces were one of the strategies that can keep women's voices despite the hostile environments. Specifically, the female student lounge is a women-only space in several coeducational universities in the

capital area that first began to emerge between the late 1990s and early 2000s by the demands of female students. The experiences of female students about being excluded in male-dominated cultures became common problems, and the students could discuss those issues and make some networks in the lounge, which is an empowered space (Ko, 2016). Yet, there is a controversy that female-only spaces or facilities are reverse discrimination against males these days.

In 2011, a dispute was raised about the women-only library in Jecheon-si, South Korea, which opened in 1994 (S. Lee, 2021). An old lady named Hak-im Kim bought and donated the site of the Jecheon Women's Library with the whole fortune she earned by sewing, saying, "Please resolve the discrimination of educational opportunities I felt while living as a woman." However, a man in his twenties appealed to the NHRCK in 2011, claiming it discriminates against males, and the NHRCK urged the city and the library twice the following year. The city contended that the women-only library is irrelevant to sexism and followed the donor's opinion. They also explained that the donor was satisfied and proud of the library during her lifetime and that her family wanted the library to operate its initial intent. Still, NHRCK decided that it is hard to prioritize the donor's personal opinion over a public facility's purpose of operation since the national property act states that the donor's intent does not have a legal effect. Nevertheless, Jecheon-si asserted that the library did not exclude men completely, as boys under the age of 10 can use the library with a female caregiver, and other men can borrow the books with the employees' help. About 10% of borrowers are male, and the city specified that they plan to have a reading program with families, including fathers, but NHRCK did not accept those claims and judged the library as excessively limiting men's use since there are no men's restrooms in the library and men cannot use library archives. Although there is a city library near the women's library, NHRCK claimed that there are considerable differences in proximity using public transportation. Eventually, the library accepted the exhortation of NHRCK partly and allowed lending books for men since July 2021, but a library official stated that they are not considering additional actions, such as building men's restrooms (S. Lee, 2021). This specific instance shows the current dispute about women-only facilities.

3. Women's Fear of Invasion of Female-Only Spaces by Men

Female students who requested the lounge mentioned above emphasized that the lounge is not merely a convenient facility. It was an area that showed the possibility of constructing a safe place on their own, meeting other female students, and making new networks while not being intimidated by sexist cultures and threats (Ko, 2016). Ko (2016) claims that women-only spaces protect the power to voice opinions, have allies, and fight against unfair experiences together. Furthermore, Jeong (2018) states that the demand for a safe place only for women is a strategic barrier created in the reality of hidden cameras and sexual violence daily, not only widespread misogyny online. Also, the author claims that radical feminists have high sexual anxiety about men invading women's spaces after experiencing widespread sex crimes in South Korea, such as hidden camera crimes and the Gangnam station murder case. Thus, the author examines that the "biological women" category is not a barrier of radical feminism to exclude transgender women but rather a discourse constructed defensively in debates with men using transgender rights to attack feminism (Jeong, 2018).

In February 2020, a trans woman student who had sex-change surgery became qualified to enter Sookmyung Women's University. As a result, many enrolled students resisted her matriculation after noticing it through news articles (Jang, 2020). According to an article, the

enrolled students in the university protested by calling the admissions office as a group and sending protest emails to the alumni association, although the trans woman student already had the sex-change surgery in 2019 and finished the gender recognition legally (Jang, 2020). One of the students stated that women's college was created for women with fewer opportunities and mentioned that she could not understand why a person who had lived as a man until last year wanted to enter a woman's college (Jang, 2020). Moreover, more than 20 universities' radical feminism clubs made a social network account. They announced the statement opposing the student's enrollment and, further, "opposing sex change that threatens women's rights" (Sookmyung Women's University TF Team X Against Transgender Male's Admission, 2020). Another student expressed uncomfortable feelings after experiencing a series of events and mentioned the case in which a male drug offender hid in the restroom in the student union of the university and the case in which a male dressed up like a female trespassed on the toilet of the campus (Jang, 2020). Although there are no exact statistics, Lee and Kim (2020) highlight some specific cases that show the security of several women's universities has been in danger of strangers' invasion. They claim that some movements have started to exclude transgender people in women's universities since 2017 due to the threats to the safety of female students. In April 2017, a male student from a different university trespassed into Sookmyung Women's University and was arrested for sexual harassment charges. Dongduk Women's University banned unauthorized people from entering the campus in October 2018 after a male stranger committed lewd acts naked in a lecture room. Also, Ehwa Woman's University expanded the installation of security cameras and ID card readers at the entrance of the buildings in 2018 after a male office worker was charged with breaking into the campus and touching a sleeping female student's body. Consequentially, several women's universities ended up restricting outsiders' visits after hidden camera crimes or males dressed up as females trespassing into their restrooms (Lee & Kim, 2020).

Regarding the student's admission, there were, indeed, some students' strong opinions as well that the university and the students must not exclude or hate specific gender identities for mature society (Jang, 2020). In particular, the Student and Minority Human Rights Commission of Sookmyung Women's University (2020) posted a statement on their Facebook supporting the student and stating that the founding ideology of women's universities in South Korea is to provide the equal right to education to social minorities, including women. In other words, the commission defined the essential goal of women's universities as resolving discrimination and seeking equality; thus, denying a specific person's identity and discussing approval or disapproval of her admission is against the university's ideology (The Student and Minority Human Rights Commission of Sookmyung Women's University, 2020). However, the transgender student eventually renounced admission to Sookmyung Women's University (Kwon & Kang, 2020). She decided on the deadline day for paying tuition (Kwon & Kang, 2020), which is the last day for students to cancel their enrollment. Regrettably, the student watched every reaction to her news and other people's exclusion and said, "I was so scared all day long. I feel like my heart is torn down after being cursed at all kinds of things" (Kang, 2020). Emphasizing social visualization of transgender people, she also shared another experience when she visited the office of education to register for the national college entrance exam. She was in a one-piece dress, and an employee criticized her outfit and told her to dress up "normally" as other students can feel uncomfortable on exam day. Eventually, she wore pants instead of skirts. Before giving up the admission, she stated in the interview that if she was able to get into the university, she would endeavor to inform the public that anyone can be minorities in some aspects. In the interview, she stated her hope for society to embrace every person more and mentioned that people should respect and consider minorities of different identities if they do

not want to be discriminated against and despised in other situations where they are a minority (Kang, 2020).

Conclusion

A number of people suffer and dispute the discord between transgender people and TERFs. TERFs in South Korea started to reject transgender people due to fear and threat to their safety. They do not trust trans women and refuse to embrace them as females who must be protected by feminism's goal for women's rights. However, it is true that transgender people, specifically trans women in this paper, have undergone experiences of both personal and systematic discrimination and exclusion. They are otherized by both males and females and alienated from society. The disharmony between the two groups can eventually lead to more exclusion by having more strict standards for other social groups, which also creates separation among people. Even though feminism is an essential social movement for women's rights and is necessary for a better society, it is crucial to resolve the conflict and accept more people rather than rejecting others with rigid criteria about the category of women.

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Advancing Educational Equality: Using AI Technology in K-12 English Language Education in Rural China

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Abstract

The development of artificial intelligence (AI) technologies provides the opportunity for students from disadvantaged areas to have equal access to educational resources. This paper applies the theory of educational equality to examine AI technology as an alternative to the current ICT practices for the improvement of English language education in rural China. A systematic review was conducted to analyze the research on AI in English language education published between 2017 and 2022. The overall findings show that the use of AI technology can effectively promote English proficiency. Lastly, the paper also establishes pedagogical implications and suggestions for future study.

Keywords: Artificial Intelligence (AI), Educational Equality, English Education, K-12 Education, Rural Chin

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Introduction

The advent of digital technologies such as Artificial Intelligence (AI) and Information and Communication Technology (ICT) has provided the opportunity for students in disadvantaged areas to receive equal education (Vincent-Lancrin & van der Vlies, 2020). ICT, known for its far-reaching possibilities, has been widely adopted to promote equality in English language education throughout many countries over the past three decades. Although ICT integrates several types of technology and media to facilitate language teaching and learning, the primary applications of ICT in rural English education are DVDs and recorded videos (McQuaide, 2009; Zhao & Jiang, 2019). These do in fact promote educational equality to some extent but also sacrifice the most valuable aspect of language education – the teacher-student interaction (Li et al., 2018).

K-12 English language education in rural China likewise faces similar dilemmas. English is taught as a foreign language (EFL) and it plays an important role in the Chinese education system (McKay, 2002). However, the quality of English instruction and acquisition is relatively low in rural Chinese schools. After visiting 18 primary schools in rural western China, Su (2010) revealed that inadequate equipment for teaching English and insufficient qualified English teachers were the main reasons for poor English proficiency among rural students. Two years later, the Chinese government established policies to increase investment in educational technology to promote educational equality, with special attention given to the west and central regions (Bai et al, 2016). Benefiting from the 10-Year Development Plan of Educational Informatization (MOE, China 2012), and the 13th Five-Year Plan of Educational Informatization in China (MOE, China 2016), 99.7% of rural schools are now connected to the Internet, and 95.7% of primary and secondary schools have built multimedia classrooms (MOE, China 2020). However, despite this technological support, Li (2019) claimed that rural students' English proficiency, especially speaking, had not been greatly improved due to the lack of interaction in the recorded lessons. The studies by Su (2010) and Li (2019) indicated that although ICT does compensate somewhat for the low quality of K-12 English education in the less prosperous regions, it has not provided very much benefit to rural students. For instance, Fan and Cheng (2015) revealed that even the outstanding rural students still performed below the urban average in the college entrance examination (as cited in Guo et al., 2018).

Although existing studies have shown that ICT has improved the quality of English education in rural areas in China (Li et al., 2018) and narrowed the gap between urban and rural K-12 education to a certain degree (Zhao & Jiang, 2019), the lack of interactivity of ICT is not conducive to the improvement of rural students' English proficiency in the long term (Liu, et al., 2019). When looking to the future, it seems that AI, as a more advanced form of technology (Holmes et al., 2019), therefore offers an alternative solution to ICT.

Artificial intelligence (AI) is the product of the big data era. Although it is a new technology, research investigating the effectiveness of using AI technology in language education has been conducted in many countries. For example, Sternberg et al. (2017) acknowledge the high value of using AI tools in English education. Researchers from developed countries such as Denmark and the United Kingdom have also demonstrated the effectiveness of AI applications in language learning (Hibert, 2019; Simonsen, 2021). Moreover, UNESCO called for the use of AI to ensure equitable access to quality education (2019), and more countries overall have begun using AI technology to promote sustainable development in education. One leading example is China. In 2017, the Chinese government issued the Next

Generation Artificial Intelligence Development Plan to prompt the development of AI-assisted technology in education (MOE, 2018). As a result of the new AI policy and the rapid development of 5G technology, Chinese AI educational companies, together with schools in developed regions, have used AI technology to improve the quality of English education.

Previous research has focused on applying AI technology in schools in developed regions (Wu, et al., 2021). It appears that research examining AI practices has been conducted elsewhere, but not rural China. Therefore, it is important to examine how existing AI technology can inform practice in K-12 English education in rural China. As such, this paper aims to explore the possibilities for using AI technology as an alternative to ICT for English language instruction in rural regions of China by answering the following research questions:

1. What AI technology is being used in English language education?
2. How effective is the use of AI technology in English language education?
3. How can AI technology be used to advance educational equality in K-12 English language education in rural China?

To address these questions, a systematic literature review was conducted to synthesize the latest studies of AI in English language education in non-English speaking countries. The conclusion based on the analysis highlights implications for AI practices in rural K-12 English language education and sheds light on ways to advance educational equality in rural China.

Literature Review

This section is organized as indicated in Figure 1 to situate AI in the broader context and the premises associated with the perspective of educational equality.
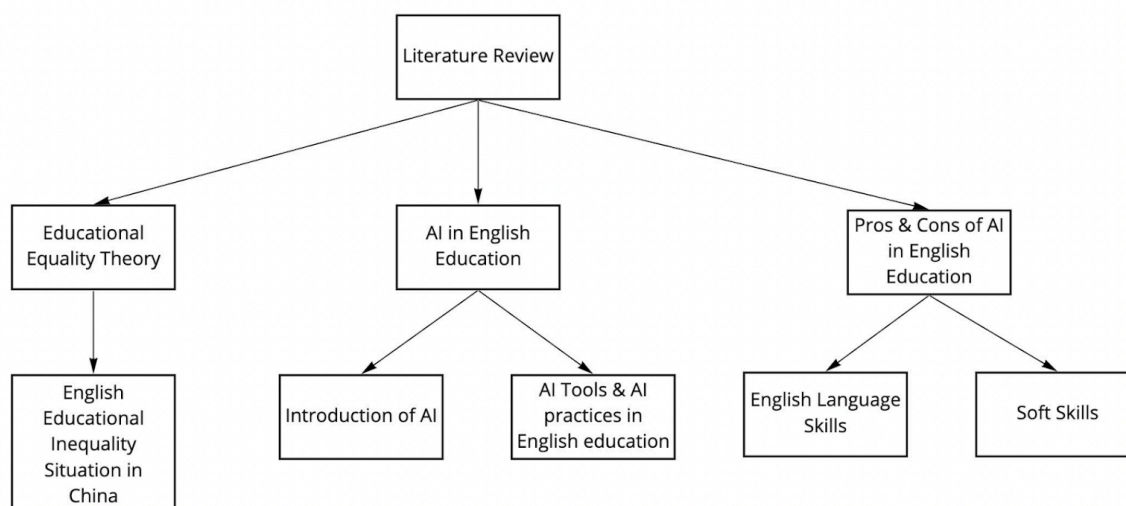
Figure 1: The Mind Map of Literature Review

Educational Equality Theory

Farrel (1999, as cited in Espinoza, 2007) summarized four aspects of educational equality: (a) equality of access; (b) equality of survival; (c) equality of output; (d) equality of outcome.

According to Espinoza (2007), the equality of access to education could be defined as access to equal educational opportunity, which aims to achieve equal education results with the premise of equal resource allocation.

English Educational Equality Context in China

The past two decades have witnessed great efforts being made by the Chinese government to promote educational equality. Prior to 2007, the Chinese government established educational equity as a national strategy, with special attention given to the development of rural education (MOE, 2007). To further promote educational equality and narrow the gap between urban and rural education, the Chinese government introduced the "Internet + Education" policy in 2020 (NDRC, 2020). With the support of these policies, there has been some gradual reduction in the urban-rural educational disparity. Although equality in rural education has improved with the help of Internet technologies, there is still a significant gap between rural and urban education in modern subjects such as English (McQuaide, 2009). The reason for this imbalance is not only because of the lack of qualified English teachers in rural schools (Bao, 2006), but also because the current ICT technology cannot provide rural students with high-quality English education due to technical limitations, with the result being that rural students' English linguistic competence is far inferior to that of urban students (Li et al., 2018).

Introduction of AI

In 1956, John McCarthy introduced the concept of artificial intelligence (AI). Since then, machine-assisted learning has gained in popularity among scholars, educational practitioners, and members of the public involved in different areas of activity. Now AI has penetrated almost every aspect of existence and AI technology applications have become an important part of our daily lives (Nayak & Dutta, 2017). Natural language processing, facial recognition, and autocorrect are a few examples of applications of artificial intelligence. In addition, researchers and educational practitioners are applying AI technology to improve the education process. This AI-assisted educational practice is referred to as artificial intelligence in education.

AI Tools and Practices in English Education

Language education benefits from AI developments in many ways. Pokrivcakova (2019) summarized seven types of AI technology in foreign language education: (a) the customization of learning materials; (b) machine translation; (c) AI writing assistants; (d) conversational chatbots; (e) AI-powered language learning software; (f) intelligent tutoring systems (ITS); and (g) virtual reality (VR). Different AI technologies are applied to suit the needs of the learners based on the four different skills (listening, speaking, reading, writing) in learning English.

AI in English Listening

In terms of listening skills, the most used AI tools are chatbots and AI-powered language learning platforms. For instance, Zhou (2020) designed an AI-based self-learning platform for EFL college students to improve their listening proficiency. In the study made by Hu and Hu (2020), an AI robot called King of Listening Study was applied to promote Chinese EFL learners' listening skills. The AI robot contained several functions, such as providing

intelligent guidance, designing learning paths, detecting weaknesses, and controlling learning progress. Jeon (2022) also created an AI chatbot for enhancing Korean students' English listening abilities.

AI in English Speaking

Regarding speaking skills, AI technologies such as conversational chatbots, AI-powered language learning applications, intelligent tutoring systems, and virtual reality are frequently used. Many studies have examined AI chatbots in English language classrooms (Han, 2020; Kim et al., 2019; Lin & Mubarok, 2021; Tu, 2020; Yang et al., 2022). Equipped with automatic speech recognition technology (ASR), voice-based chatbots can not only correct students' pronunciation automatically but also provide personalized answers in response to students' messages (Kim et al., 2019; Pokrivcakova, 2019). In contrast to the conversational chatbots, virtual reality has been viewed as a more advanced AI technology that can create an immersive language environment for learners. For example, Guo et al. (2017) developed an English learning system by using virtual reality technology to provide more language exposure for students to improve oral English proficiency. Wang and Shi (2021) also combined virtual reality technology to build an AI virtual English oral pronunciation accuracy correction model for detecting EFL learners' pronunciation. In speaking, an intelligent tutoring system (ITS) functions as a virtual speaking partner and Lyra Virtual Assistance was one of the AI applications to combine the ITS technology used to enhance students' English speaking performance (Junaidi, 2020).

AI in English Reading

For reading, the most used technologies are AI-powered language learning software and customization. To support young English language learners' reading, researchers from Canada designed AI-aided tangible reading software called PhonoBlocks for Chinese EFL learners (Fan et al., 2018). In terms of customizing English reading materials, the Indian government implemented the RightToRead program in 2013 to improve English literacy among Indian students (Srinivasan & Murthy, 2021).

AI in English Writing

Regarding writing, the most used technologies are machine translation and AI writing assistants. Automatic translation tools such as Google Translate and Bing are gaining popularity among foreign language learners for their high-quality translation (Pokrivcakova, 2019). In addition to using translation machines to complete writing tasks, English learners also use AI writing assistants to assist them in their writing. AI writing assistants employ adaptive learning technology, which can provide automated writing evaluations (AWE) and correct grammatical errors during the writing process (Pokrivcakova, 2019). This AI-based writing tool has been used in different English writing classrooms. For example, Cotos (2011) adopted the AWE in an English academic writing program while Stevenson and Phakiti (2019) used it for the purposes of business writing in English.

AI in the Promotion of English Language Skills

A large and growing body of literature has investigated the effectiveness of using AI in English language education. While most studies indicate that using AI in English classrooms

has a positive impact on learners' English language skills, some studies also reported negative findings.

AI in the Promotion of English Listening Skills

Listening is regarded as an input skill in linguistic competence that requires greater exposure from the outside world (Nomass, 2013). Therefore, AI chatbots and language learning platforms equipped with multiple listening resources are useful in promoting learners' English listening proficiency. For instance, Mohammed Mahmoud Ghoneim and Elsayed Abdelsalam Elghotmy (2021) reported that there was noted improvement in English listening performance for the group of students using the AI-based learning platforms, which generated authentic listening materials and interactive activities for EFL pupils. Fryer and Carpenter (2006) examined the effectiveness of several listening chatbots such as ALICE bots and Jabberwacky, stating that AI chatbots could create a fun learning experience for English beginners with interesting listening materials. Moreover, they also pointed out that the current chatbots would benefit from further design improvement to cater to the needs of advanced English learners (Fryer & Carpenter, 2006).

AI in the Promotion of English Speaking Skills

Lee and Hwang (2022) conducted a meta-analysis on the effects of using AI chatbots in Korean EFL education, showing that both text-based and voice-based chatbots could contribute to the improvement of EFL learners' speaking performance. Similar findings were also reported in the research of Ruan et al. (2021), who demonstrated that students' vocabulary acquisition and communication fluency were slightly improved after using the AI-powered EnglishBot. However, studies also revealed the technological limitations of AI chatbots. For instance, Fryer and Carpenter (2006) claimed that chatbots were not effective for English beginners since most chatbots only identify simple keywords regardless of grammatical errors. Virtual reality (VR) is another sophisticated AI technology applied in spoken English education. Bendeck et al. (2020) stated the advantages of integrating VR in English classrooms, indicating that students' communication skills were significantly improved in the VR-created immersive language context.

AI in the Promotion of English Reading Skills

Regarding reading skills, previous studies have focused on investigating the utilization of AI chatbots and language learning platforms. Bailey et al. (2021) examined students' reading comprehension performance as well as reading attitudes on using the AI storybots, revealing that the latter not only enhanced L2 learners' English reading proficiency but also served to motivate them to read further. Srinivasan and Murthy (2021) acknowledged the effectiveness of AI-powered language learning platforms, demonstrating that significant improvements were observed in Indian students' English reading comprehension after participating in the AI-aided RightToRead program.

AI in the Promotion of English Writing Skills

Regarding writing skills, prior studies have explored the effectiveness of AI-powered machine translation and AI writing assistants in English language education. Lee (2019) examined the effects of using machine translation tools in EFL writing classrooms. The study showed that the use of machine translation software positively improved students' writing

quality but over-reliance on machine translation tools could lead to negative results such as mistranslation and dependence on first language writing style (Lee, 2019). With a similar point of view, Lee (2021) affirmed the usefulness of machine translation tools in foreign language learning, claiming that translation tools can effectively reduce lexical and grammatical errors in second language writing. However, Lee (2019) also expressed concerns about English teachers' negative attitude towards students' frequent use of machine translation in language learning. To address the problem, Steding (2009) called for actions to prevent academic dishonesty regarding English writing. Another tool frequently used in the EFL classroom is an AI writing assistant, or automated writing evaluation. Numerous studies have reported positive effects from using automated writing evaluation in English writing such as improved accuracy in writing (Liao, 2016; Parra & Calero, 2019; Wang et al., 2013). However, not everyone has expressed a positive opinion of automated writing evaluation systems. Liu and Kunnan (2016) claimed that some automated writing evaluation systems like WriteToLearn were not advanced enough to provide personalized feedback to EFL learners. Similarly, Parra and Calero (2019) also reported insufficient interaction between automated writing evaluation tools and English learners.

AI in the Promotion of Soft Skills

In addition to increased English proficiency, the development of soft skills was also observed as a result of using AI technologies. UNESCO (2019) highlighted four main advantages of AI technology in education, with one of them being advancements in collaborative learning abilities. Numerous studies have shown that using AI in English classrooms can effectively alleviate learners' speaking anxiety, since students feel more comfortable when communicating with an AI robot than a human speaker (Åhs et al., 2020; Bashori et al., 2020; Han, 2020; Zheng et al., 2021). Studies have also shown that AI technologies can increase students' motivation and engagement in language learning. For example, Mohammed Mahmoud Ghoneim and Elsayed Abdelsalam Elghotmy (2021) found that listening lessons were more memorable as the AI-based listening program motivated and engaged students. Parra and Calero (2019) also highlighted findings of increased motivation when automated writing evaluation tools were used by EFL learners. Other studies found social implications for integrating AI in English education. Bailey et al. (2021) demonstrated that students could incorporate language learning in real-life contexts by interacting with the storybots. Furthermore, leaners have been observed to develop autonomy and self-regulation from AI language learning practices. The outcome was rather significant for the use of automated writing evaluation systems since EFL learners could review their writings without help from writing teachers (Pokrivcakova, 2019; Wang et al., 2013).

Methodology

This systematic review aims to examine AI-assisted English learning tools and practices. The review was based on a meta-analysis (PRISMA) process (Selçuk, 2019) and there were multiple rounds of selection to ensure the quality and relevance of the articles.

The relevant papers were manually selected from the Web of Science and Scopus databases, which are known for featuring high-quality, reputable social science publication (Mongeon & Paul-Hus, 2015). Due to the rapid advances in AI technology, only articles published between 2017 and 2022 were used for analysis.

In the initial round of screening, the keywords AI, artificial intelligence, ESL, EFL and their random combinations were entered into the Web of Science and Scopus databases, which yielded 123 and 372 articles, respectively.

The second round of selection focused on screening the abstract, introduction, and conclusion. To screen suitable articles from the research pool, the following criteria were applied in the second round of screening:

    (a) studies conducted in non-English speaking countries or areas;
    (b) ESL or EFL learners;
    (c) topics related to AI-assisted English learning technology;
    (d) conclusions related to the impact of AI technology on English language learning;
    (e) studies that involved any of the English listening, speaking, reading, and writing skills.

Following the above five criteria, literature review articles concerning only micro English language skills such as vocabulary, pronunciation, grammar, and translation were excluded for further analysis. After the second round of selection, 56 articles were selected for the next screening process.

In the third round of selection, articles were reviewed. The criteria applied in the second round were used again in the final selection. After careful screening, a total of 26 papers were selected for final analysis as illustrated in Figure 2. The data was presented in table format, as exemplified by Figure 3, by speaking, writing, listening and speaking, and reading, indicating the types of the studies and the findings in Appendix A to F.
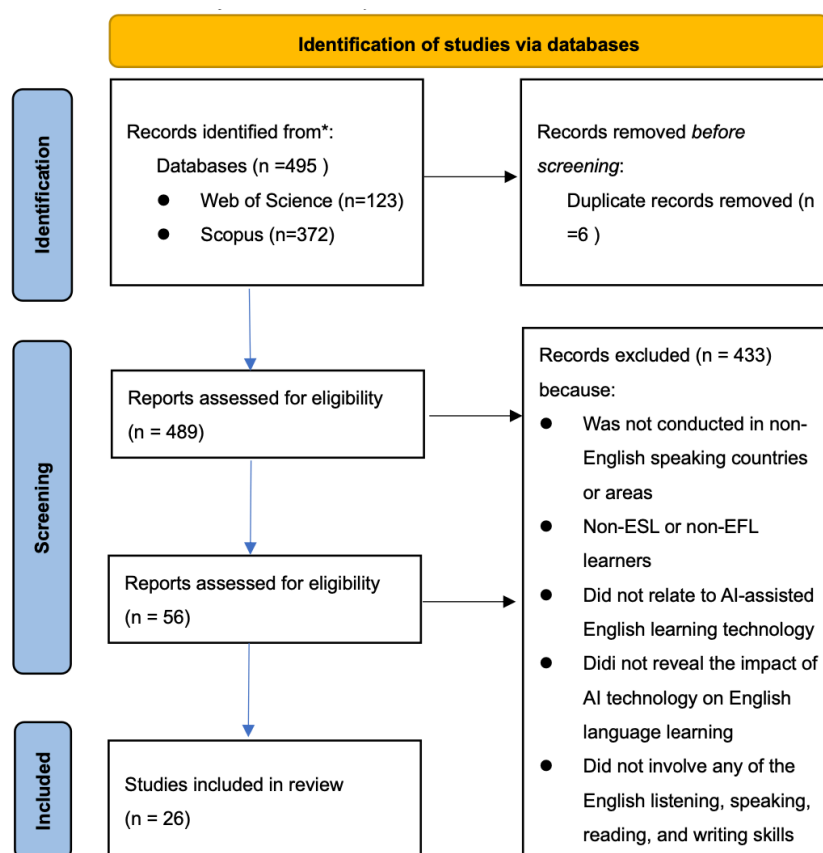
Figure 2: The PRISMA Process for Meta-Analysis Review

Appendix B

A summary of using AI technology for English listening and speaking skills

ID	Authors/Year	Place of studies	Research Question	Participants	Educational Level	Macro-skills	AI Type	Findings
1	Jeon (2022)	South Korea	To investigate how chatbots affect ESL students' motivation to learn a language.	36 Korean EFL learners	K-12	Listening & Speaking	Chatbots	Using the chatbot in EFL classrooms can promote students' listening and speaking skills and reduce their speaking anxiety.
2	Chen et al. (2018)	Taiwan	To introduce a novel methodology for adopting an AI robot in the drama-based digital learning theatre to help ESL students learn English.	ESL students from a junior high school in China	K-12	Listening & Speaking	AI robot	Data under collection.
3	Latypova et al. (2018)	Russia	To investigate the potential use of using the interactive mobile application ELEVATE to improve ESL learners' English performance without teacher's help.	27 first-year Russian undergraduates at the C1 level in English	Higher Education	Listening & Speaking & Reading	AI-powered language learning app	ESL students' English learning performance and critical thinking ability were considerably enhanced by using the MALL-based language learning technology.
4	Mageira et al. (2022)	Greece	To examine the efficacy of using AI chatbot technology to enhance EFL students' foreign languages and cultural content learning.	28 Greek EFL high school students	K-12	Listening & Speaking & Reading	Chatbots	The use of AI chatbot technology can efficiently support the learning of foreign languages and cultural content at the same time.

Figure 3: An Example of Summary for the Use of AI Technology by English Skills

Discussion of Findings

In this section, the findings are discussed in response to the overarching research question "*How can AI technology be used to advance educational equality in K-12 English education in rural China?*" by answering the following two operational questions:
1. What AI technology is being used in English education?
2. How effective is AI technology in English education?

AI Technology in English Education

Within the results obtained from the systematic review, it was possible to conclude that there were four types of AI technologies that have been commonly used in the English education in recent years: (a) conversational chatbots; (b) AI-powered language learning software; (c) automated writing evaluation (or AI writing assistants); and (d) machine translation. These are in keeping with Pokrivcakova's (2019) categorization of AI technology in language education. According to the data analysis, chatbots and AI-powered language learning software were frequently used in teaching English listening, speaking, and reading skills, while automated writing evaluation and machine translation were mostly applied in English writing, the results of which are likewise in accordance with the previous literature. However, AI technologies such as virtual reality (VR) and intelligent tutoring systems (ITS), which were considered as effective tools in improving spoken English, were not found in the results (Guo et al., 2017; Junaidi, 2020; Wang & Shi, 2021). This is probably because the AI technology required to build VR and ITS is too complex, and the investment is relatively high compared to other AI-aided tools. Therefore, since most of the non-English speaking countries are in economically underdeveloped areas such as Asia, Africa, and South America (in this study, primarily Asian countries were represented), it is difficult to build complex systems at this initial stage of integrating AI technologies in English education due to the lack of technology and funding.

The Effectiveness of AI Utilization in English Education

According to the research results, the overall findings showed that using AI in English education has a positive impact on improving students' language competency and their development of soft skills. For instance, studies on the use of AI chatbots and AI-powered language learning platforms in teaching spoken English match previous studies, which showed that AI-based conversational agents promote students' English speaking performance (Lee & Hwang, 2022; Ruan et al., 2021). Although most of the articles reviewed in this research are in accordance with previous several investigations that indicate that using AI chatbots can decrease students' speaking anxiety, one study challenged such results (Åhs et al., 2020; Bashori et al., 2020; Han, 2020; Zheng et al., 2021). This outcome may be explained by students' unfamiliarity with the AI tools or the poor design of the AI chatting systems. Another negative impact that demonstrated the ineffectiveness of using AI chatbots for advanced learning was also consistent with the ideas advanced by Fryer and Carpenter (2006).

Findings regarding the utilization of AI in English writing were mostly positive. One unanticipated result was that using the automatic feedback system would disrupt students' thinking process during the writing process, which was contrary to most of the previous findings determining that the use of automated writing evaluation was effective in promoting students' English writing skills (Cotos, 2011; Pokrivcakova, 2019; Stevenson & Phakiti, 2019). Regarding the AI translation tools, Pokrivcakova (2019) showed that AI-based translation tools can facilitate students' production of high-quality writing. Despite acknowledging the effectiveness of machine translation tools, this study also revealed that the mistranslations produced by translation tools would be detrimental to students' English writing, which was consistent with the study by Lee (2019). Nevertheless, no findings in this study reported any academic dishonesty or plagiarism behavior caused by the translation machine (Lee, 2021; Steding, 2009).

What was surprising was that only a few studies investigated the use of AI in English listening and reading. One possible explanation for this might be that because ESL and EFL learners perform less satisfactorily in English speaking and writing in comparison with listening and reading, greater emphasis was placed on improving their speaking and writing competency. Although less attention was paid to designing AI-aided listening and reading tools, the study also found that students' listening and reading comprehension was significantly improved through the use of AI-powered language learning application, which agreed with previous studies (Bailey et al., 2021; Srinivasan & Murthy, 2021).

What was curious about this finding was that the development of soft skills was also observed in the study. It can be seen from the analysis that the soft skills were unexpected outcomes benefiting from the use of AI tools. For instance, the most prominent soft skills fostered by AI were the increase of learning motivation and the development of learning autonomy, affirming the previous findings that AI technology is beneficial to personal development (Mohammed Mahmoud Ghoneim & Elsayed Abdelsalam Elghotmy, 2021; Parra G. et al., 2019; Pokrivcakova, 2019; Wang et al., 2013). Several factors could explain this observation. Firstly, the AI tools were initially designed to replace part of the work of the language teachers. In this case, students could learn English through AI without the help of teachers, thus fostering their independent learning abilities. Secondly, the AI tools presented interesting content such as colorful pictures and captivating videos that could actively engage students in the process of learning English. One unexpected finding was the development of

critical thinking abilities, which did not feature in the literature review conducted for this study. A possible explanation for this finding may be that the existing studies focused more on investigating the relationship between the use of AI and students' linguistics competence and psychological development rather than using AI to cultivate a specific soft skill.

Using AI to Advance Educational Equality in K-12 English in Rural China

The results from this systematic review indicated that AI technology is effective in promoting English language learning. Compared to the traditional ICT technology, AI is an advanced alternative that can effectively improve the quality of rural English education, thus advancing educational equality in rural China. Therefore, the lessons learned from this study can inform policy and further research to improve AI practices in rural China. In terms of policy, it is necessary to promote rural education in ways that provide adequate financial support to rural schools to facilitate the implementation of AI technologies. In terms of practice, it is necessary to strengthen rural teachers' and students' information literacy to ensure the effective practice of AI technology. In addition, promoting school-enterprise cooperation is imperative to enable the sustainable development of informatization (Knox, 2020).

Limitations

Despite the positive outcomes of the studies mentioned in the systematic review conducted in this study, a note of caution is necessary regarding K-12 English education in the context of rural China. Since some of the AI practices were implemented in higher education and different culturally specific contexts, educational practitioners need to further consider ways to transfer AI practices that have been successful in higher education to K-12 education in rural China. Moreover, the combinations of the keywords in the database search phase might also affect the number of yielded articles.

Conclusions

Achieving educational equality has always been a goal for the Chinese government (MOE, 2007). Overall, students from rural China have fair opportunities to receive education; however, the problem of high-quality educational opportunities lacking in the less developed regions remains (Bao, 2006). In the past three decades, ICT technology has allowed students from rural China to have fair educational opportunities for education. Regarding its influence on English language instruction in particular, previous studies have shown that ICT has effectively compensated for the disadvantages of English language education in rural areas. However, due to the limitations of ICT technology, such as a lack of interactivity and an inability to personalize learning, it is not sufficient to solely rely on ICT technology in the long term to improve the quality of rural English language education. Therefore, more advanced technology is needed to compensate for the limitations of ICT to support the development of equality with high-quality English language education in rural China. Advances in AI technology have demonstrably made it possible to enhance the quality of English education. Many countries have conducted studies investigating the effectiveness of using AI technology to promote education, with China being at the forefront of such measures. Since the implementation of the "AI + education" national policy in 2017 and the rapid development of 5G technology, AI-based educational technology has been applied in schools in developed regions of China. However, no studies have yet explored the possibility of applying AI technologies to K-12 English language education to enhance educational equality in rural China. Therefore, drawing on the theory of educational equality, the present

study serves to showcase the possibility of using AI technology to advance equality in K-12 English education in rural China.

This systematic review examined 26 articles published between 2017 and 2022 that studied the AI-supported applications in English education in non-English speaking countries. According to the analysis, most studies proved that AI technology could effectively facilitate the learning of English. In terms of speaking skills, AI-powered human-computer interaction technology allowed students to talk with chatbots, effectively allowing them to avoid "dumb English." Regarding writing skills, AI-assisted automatic feedback systems effectively improved English learners' writing skills. Moreover, machine translation also made it possible to narrow the gap between skilled and less skilled English writers, thus building up students' learning confidence. In terms of listening and reading skills, AI-based applications such as chatbots and robots proved to improve English learners' listening and reading comprehension skills. Some studies also indicated that the use of AI technology, in addition to enhancing English skills, can help students develop soft skills such as improving critical thinking abilities, increasing learning motivation, and developing independent learning behavior. In summary, compared to traditional ICT technology, AI-based applications encourage students to engage in English learning actively. By using AI technology, students have the opportunity to learn English in an authentic language environment, thus improving their English skills in a comprehensive way. Therefore, using AI technology has the potential benefit of enhancing the quality of English education in rural China, thereby upholding rural students' rights to receive a high-quality education. Lastly, this article provides new perspectives for policymakers and educational practitioners in terms of applying AI in English language education in rural China. Future research could include empirical studies to investigate the effectiveness of using AI in rural English language education in China.

Appendices

Appendix A: A summary of using AI technology for English speaking skills

ID	Authors/Year	Place of studies	Research Question	Participants	Educational Level	Macro-skills	AI Type	Findings
1	Yang et al. (2022)	South Korea	To examine the appropriateness of using AI chatbot to encourage EFL learners to engage in conversation.	314 Korean EFL learners	K-12	Speaking	Chatbots	The chatbot highly encouraged students to engage in conversation.
2	Chen (2022)	Non-English-speaking countries (not specified)	To investigate the effects of using instructional feedback to decrease ESL learners' public speaking anxiety.	33 university EFL students	Higher Education	Speaking	Automatic feedback system	The instructional feedback generated by AI decreased the participants' public speaking anxiety.
3	Chen et al. (2022)	Taiwan	How speech recognition and corrective feedback technology improved ESL students' English speaking skills and reduced learning anxiety.	56 fifth-grade Chinese EFL students	K-12	Speaking	Automatic speech recognition technique; Corrective feedback	The automatic speech recognition and corrective feedback technologies can effectively improve the students' English-speaking skills and decrease their English speaking anxiety.
4	Lin et al. (2021)	Taiwan	Compare the effectiveness of using the mind map-guided AI chatbot and conventional AI chatbot to promote EFL learners' English speaking performance.	50 EFL students	Higher Education	Speaking	Chatbots	The mind map-guided AI chatbot approach (MM-AI) promoted the students' English speaking performance.
5	Kim et al. (2021)	South Korea	Analyze the effectiveness of using three different types of interactions (two AI chatbots) to improve English speaking performance.	A total of 110 university students (38 face-to-face; 35 text-chatting AI; 37 voice AI)	Higher Education	Speaking	Chatbots	Using AI text-chatting and AI voice-chatting technologies improved students' speaking performance after the experiment.
6	El Shazly (2021)	Egypt	Investigate the effects of using AI chatbots to improve EFL learners' linguistic output gains.	48 undergraduate Egyptian students	Higher Education	Speaking	Chatbots	AI chatbots are promising for significantly improving linguistic output gains and are beneficial in advancing FL learning with significant potential in EFL contexts, facilitating interaction and oral communication. However, AI did not reduce speech anxiety.
7	Tai & Chen (2020)	Taiwan	Investigate the impact of intelligent personal assistants on EFL learners' willingness to communicate.	112 eighth grade EFL learners	K-12	Speaking	Automatic speech recognition technology	Using intelligent personal assistants can create a less threatening EFL learning environment and increase students' engagement, motivation, and confidence.
8	Hsu (2020)	Taiwan	Investigate the learners' levels of attention, meditation, and brainwaves while interacting in three different chatting contexts (face-to-face; virtual; AI chatbot).	30 Chinese non-English-major sophomores	Higher Education	Speaking	Chatbots & AI-powered language learning platforms	An AI chatbot may be of great assistance to EFL learning. However, in the long term, they may not be sufficient to enable EFL learners to comprehend advanced or complex sentences.
			Investigate the effectiveness of using a 3D holographic learning support system (virtual personalized instructor) to reduce adult EFL learners'	12 Chinese EFL	Higher		3D Interactive learning	The proposed 3D holographic platform did create the environment and provide opportunities for EFL learners to apply their target language and reduced their foreign language

9	Chen (2018)	Taiwan	English speaking anxiety. To investigate the outcomes of using a self-directed interactive app in promoting students' English speaking skills and language learning motivation.	sophomores	Education	Speaking	support system	speaking anxiety.
								The use of a conversational agent effectively enhanced students' speaking skills and motivated
10	Jeon (2022)	South Korea		179 EFL primary school learners	K-12	Speaking	Interactive agent	them to speak English confidently.

Appendix B: A summary of using AI technology for English listening and reading skills

ID	Authors/Year	Place of studies	Research Question	Participants	Educational Level	Macro-skills	AI Type	Findings
1	Jeon (2022)	South Korea	To investigate how chatbots affect ESL students' motivation to learn a language.	36 Korean EFL learners	K-12	Listening & Speaking	Chatbots	Using the chatbot in EFL classrooms can promote students' listening and speaking skills and reduce their speaking anxiety.
2	Chen et al. (2018)	Taiwan	To introduce a novel methodology for adopting an AI robot in the drama-based digital learning theatre to help ESL students learn English.	ESL students from a junior high school in China	K-12	Listening & Speaking	AI robot	Data under collection.
3	Latypova et al. (2018)	Russia	To investigate the potential use of using the interactive mobile application ELEVATE to improve ESL learners' English performance without teacher's help.	27 first-year Russian undergraduates at the C1 level in English	Higher Education	Listening & Speaking & Reading	AI-powered language learning app	ESL students' English learning performance and critical thinking ability were considerably enhanced by using the MALL-based language learning technology.
4	Mageira et al. (2022)	Greece	To examine the efficacy of using AI chatbot technology to enhance EFL students' foreign languages and cultural content learning.	28 Greek EFL high school students	K-12	Listening & Speaking & Reading	Chatbots	The use of AI chatbot technology can efficiently support the learning of foreign languages and cultural content at the same time.

Appendix C: A summary of using AI technology for English writing skills

ID	Authors/Year	Place of studies	Research Question	Participants	Educational Level	Macro-skills	AI Type	Findings
1	Liu et al. (2021)	China (Mainland)	To investigate the effectiveness of using AI-supported English writing approach in EFL writing.	103 EFL university students	Higher education	Writing	Automated writing evaluation	The AI-supported English writing approach not only significantly improved the students' English writing performance, but also improved their self-efficacy and self-regulated learning, and significantly reduced their cognitive load.
2	Morch et al. (2017)	Norway	Compare the effectiveness of using two different feedback conditions to improve EFL students' English writing grades.	173 Norwegian secondary students	K-12	Writing	Automated writing evaluation	The students using the EssayCritic technology included more ideas (content) in their essays.
3	Nazari et al. (2021)	Iran	To examine the efficacy of using an AI-powered writing tool for non-English speaking students' English academic writing.	120 26- to 39-year-old Iranian postgraduate students	Higher education	Writing	Automated writing evaluation	AI-powered writing tools could be an efficient tool for promoting learning behavior and attitudinal technology acceptance through formative feedback and assessment for non-native postgraduate students in English-language academic writing.
4	Johnson et al. (2021)	Germany	Using an AI-supported chatbot to appraise the influence of group learning and gamification on enhancing motivation and engagement in remote learning scenarios.	12 EFL secondary school students	K-12	Writing	AI-assisted adaptive learning	The study suggests that Escapeling has potential as a collaborative language learning environment.
5	Wang (2020)	China (Mainland)	To investigate the effectiveness of using the online automated essay evaluation system to enhance students' English writing ability.	188 Chinese EFL undergraduate from China Agricultural University	Higher education	Writing	automated essay evaluation (AEE) system	The students' independent learning abilities and English writing abilities were significantly improved at the end of the program.
6	Chew et al. (2019)	Malaysia	To investigate the efficacy of the Summary Writing-Pal (SW-PAL) to improve the students' English summary writing.	53 Malaysian computer science major undergraduate students	Higher education	Writing	Automated writing evaluation	Students using SW-PAL made significantly better improvements in English summary writing.
7	Conijn et al. (2019)	Belgium	To investigate how an automated writing evaluation tool's different feedback timing conditions influence students' writing revision process.	60 Belgian ESL undergraduate students	Higher education	Writing	Automated writing evaluation	Negative: Feedback during the full writing process did not result in higher satisfaction, but was considered significantly more disruptive compared to feedback during the revision stage only.
8	Chon et al. (2021)	South Korea	To examine the role of machine translation (MT) in L2 writing.	66 Korean EFL undergraduate students	Higher education	Writing	Machine translation	Machine translation narrowed the difference in writing ability between the skilled and less skilled learners, facilitated learner use of lower frequency words, and produced syntactically more complex sentences. Negative: MT-translated compositions contained more mistranslations and a greater number of poor word choices.

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9	Gayed et al. (2022)	Japan	To evaluate the potential impact of AI KAKU on EFL student writing.	10 Japanese EFL adult students who attend a language school	Adult education	Writing	Web application; Automated Writing Evaluation (AWE) technologies	The participants writing under the condition of AI KAKU were able to produce sentences with greater "sentence fluency".
10	Sun & Fan (2022)	China (Mainland)	To examine the effects of using an automated writing evaluation system on business English writing.	73 Chinese EFL undergraduate students	Higher education	Writing	Automated writing evaluation	Using an AWE-aided assessment approach produced long-term improvement in language accuracy and organization.
11	Cheng (2017)	Hong Kong	To investigate the impact of online automated feedback (OAF) on the quality of EFL students' reflective journals.	138 Chinese EFL undergraduate students	Higher education	Writing	Online automated feedback (OAF)	Online automated feedback (OAF) has a positive impact on facilitating EFL students' reflective journal writing and can foster students' learning autonomy.

Appendix D: A summary of using AI technology for English reading skills

ID	Authors/Year	Place of studies	Research Question	Participants	Educational Level	Macro-skills	AI Type	Findings
1	Mageira et al. (2022)	Greece	To examine the efficacy of using AI chatbot technology to enhance EFL students' foreign languages and cultural content learning.	28 Greek EFL high school students	K-12	Reading & Listening & Speaking	chatbot; conversational AI	The use of AI chatbot technology can efficiently support the learning of foreign languages and cultural content at the same time.
2	Liu et al. (2022)	Taiwan	To explore the AI-based chatbot's role of the interaction in students' engagement and interest in English reading.	68 fifth-grade elementary school Chinese EFL students, aged 11 to 12	K-12	Reading	chatbot	The chatbot was helpful for creating positive interaction experiences and for maintaining students' English reading interest and facilitate reading comprehension.
3	Latypova et al. (2018)	Russia	To investigate the potential use of employing the interactive mobile application ELEVATE to improve ESL learners' English performance without teachers' help.	27 first-year Russian undergraduates at the C1 level in English	Higher Education	Reading & Listening & Speaking	AI-powered language learning app	ESL students' English learning performance and critical thinking ability were considerably enhanced by using the MALL-based language learning technology.

Appendix E: A summary of other outcomes (soft skills) from using AI technology

English skills	Purposes	Other outcomes (soft skills)	Example sources
Speaking & Listening & Reading	To improve ESL learners' English performance	ESL students' critical thinking abilities were considerably enhanced	Latypova et al. (2018)
Speaking	To promote students' English speaking skills	The use of a conversational agent effectively motivated students to speak English	Jeon (2022)
Writing	To support students' English writing	The AI-supported English writing approach improved students' self-efficacy and self-regulated learning, and significantly reduced their cognitive load	Liu et al. (2021)
Writing	To enhance students' English academic writing ability	AI-powered writing tools can be an efficient tool for promoting learning behavior	Nazari et al. (2021)
Writing	To enhance students' English writing ability	The students' independent learning abilities were significantly improved	Wang (2020)
Writing	To improve EFL students' English reflective journal writing	Online automated feedback (OAF) can foster students' learning autonomy	Cheng (2017)

Appendix F: A summary of negative effects by using AI technology

English skills	Purposes	Negative effects	Example sources
Speaking	Investigate the effects of using AI chatbots to improve EFL learners' linguistic output gains	AI did not reduce speech anxiety	El Shazly (2021)
Speaking	Investigate the learners' levels of attention, meditation, and brainwaves while interacting with an AI chatbot	AI chatbot may not be sufficient to enable EFL learners to comprehend advanced or complex sentences in the long term	Hsu (2020)
Writing	To examine the role of machine translation (MT) in L2 writing	MT-translated compositions contained more mistranslations and a greater number of poor word choices	Chon et al. (2021)
Writing	To investigate how an automated writing evaluation tool's different feedback timing conditions influence students' writing revision process	Feedback during the full writing process did not result in higher satisfaction, but was considered significantly more disruptive compared to feedback during the revision stage only	Conijn et al. (2019)

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In Pursuit of Quality TV Programs for Young Children: What Are the Criteria in the View of Their Audience?

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Abstract

There has been concern about the impact of media on young children, especially television. Parents have been looking for appropriate, high-quality media for their children, which is why the criteria of quality TV programs for young children are essential for parents to maximize the benefit of media in developing children's learning. The 'Media Quality Rating' research developed the indexes and systems for measuring the quality of TV programs for young children using the factor analysis technique and assessed the perception and opinion of the audience of two selected TV programs. There were three dimensions to the quality rating criteria for TV programs for young children: 1) the dimension of format and content, which consisted of six factors (standard and ethics of content presentation; promotion of thinking skills and inspiration; promotion of learning, capability, and life skills; participation of children, youth, and family members; compatibility between content and target audience; promotion of social values and cultures in compliance with the program's objectives); 2) the dimension of moderator, which consisted of three factors (professionalism; positive attitudes, carefulness, and good interpersonal skills; communication, expression, and personality); 3) the dimension of presentation techniques, which consisted of two factors (picture, sound, and activity techniques; production and presentation techniques). According to an opinion survey with 665 target audiences, which were parents and children aged 13 or above, about the quality of the two TV programs for young children, both programs met the quality rating criteria (average score of above 2.61). In addition, the quality rating system should be used as a tool to enhance media literacy among children and their parents.

Keywords: Media Quality Rating, Young Children, Television Program Quality

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Introduction

'Quality' media has been an important goal of the media reform movements across relevant sectors in Thailand. Due to its connection with people in society, media is expected to operate according to its normative standard and not only serve the private interest but also the public interest, especially the media for children and youth's development.

In Thailand, there have been attempts to reform media to promote quality, age-appropriate content for children and youth. This included the allocation of time slots on state-owned television and radio stations for children and family's programs and the founding of national and provincial bodies to support and create safe and creative media (Ramasoota et al., 2011).

In 2008, government agencies, scholars, and media professionals established additional criteria for determining the age-appropriateness of TV content. The added criteria were six dimensions of content that should be promoted (+6), aside from the existing three dimensions of harmful content that should be restricted (-3), with an intention to promote high-quality TV content for children's development; this approach has been used until the present. According to *the Announcement of Office of the National Broadcasting and Telecommunications Commission (NBTC) on guidelines for determining age-appropriate TV content 2013*, the six dimensions of content included the content that promoted 1) critical thinking, 2) academic and general knowledge, 3) moral and ethical values, 4) life skill development, 5) acceptance, understanding, and appreciation of diversity in society, and 6) family and interpersonal relationship development. The six dimensions of content were used to evaluate the age-appropriateness of TV content in Thailand and to ensure that the program was suitable for children's development.

However, in determining the age-appropriateness of TV content in Thailand, it is not common practice to consider the content that should be promoted and the content that should be restricted together. Moreover, there were suggestions that the six dimensions of content to be promoted should be separated from the age-appropriateness criteria and used as the criteria for quality rating and program promotion instead. It was also suggested that tools for quality rating should be developed. It is important to have a system in place to evaluate the appropriateness and quality of TV program content, to ensure that the media follows its normative standard and also serves the public interest, especially with regard to the development of children and youth (Oranop & Ramasoota, 2014).

Moreover, the rating system used currently in the Thai media industry is Nielsen's audience rating system, which measures the media exposure or the number of people who view or listen to a particular program or advertisement. The system, also known as the exposure-oriented analytical approach, reflects the interests and demands of the content providers and advertisers rather than those of the viewers and listeners (Ang, 1991, Meehan, 1984, cited in Napoli, 2008). Although qualitative research, such as focus groups or observations, has been conducted to gather in-depth information about specific characteristics of the target audience of the media, such as their lifestyle, values, and content preference, the goal of such research was to create content that suits the target audience, which served the marketing goal rather than reflected the actual needs or opinions of the target audience about quality content (Webster, Phalen, and Lichty, 2014).

Therefore, it can be argued that the quality rating system in Thailand still has limitations in terms of the indicators and tools for measuring media quality and also lacks a concrete

system or guidelines to measure the quality of media that are prevailing in today's society through various channels, including online platforms, which are easily accessible by young children.

The lack of a system for measuring the quality of media in Thailand, combined with the reliance on the audience rating system and the increasing competition in the Thai TV industry (Office of the NBTC, 2019), have contributed to the struggles of media targeting young children. While audience ratings are useful for measuring the popularity of media, they do not provide a complete picture of the media landscape and do not take into account the specific needs and preferences of different target audiences. As a result, media targeting children and young people may struggle to thrive and compete in the industry. One example was the decreasing number of children's TV programs since the full transition to digital television in 2015. The number of children's programs in 2020 dropped by 71.73% from 2015 after three children and family's TV channels had returned their digital TV licenses in 2016 and 2019 (Laorrojwong et.al., 2022) because of the intense competition and other business factors such as low ratings, low advertisement income, and high cost (Marketeer, 2019).

Research Objectives and Framework

The objectives of this research were to 1) develop the indexes and systems for measuring the quality of TV programs for young children using the factor analysis technique and 2) assess the perception and opinion of the audience of two selected TV programs.

The conceptual framework of the study consisted of the normative theory of media, media functionalism, media quality rating, international guidelines for media performance, and the concept of children and family's programs. Additionally, research studies in Thailand about the quality of TV programs for young children and family (Jantalert, 2005; Puasopit & Kritsanapoot, 2008; Chanampon & Taiphapoon, 2015; Wipasrinimit, 2017; Tinnam et.al, 2019) indicated both similarities and differences in the characteristics of quality programs and the desirable characteristics of children and family's TV programs, which could be classified broadly as the quality of format and content, the quality of program moderator, and the quality of presentation techniques. These characteristics also served as the working framework for measuring the program quality in this research.

In addition, the quality of young children and family's TV programs can be assessed from the perspectives of different stakeholders, such as quality from the point of view of professionals and experts, quality from the perspective of the audience, and quality as diversity (Shamir, 2007). Accordingly, this research would develop a system to evaluate the program quality from the perspective of the viewers of children and family's programs, which are parents and young children.

Key findings

Key findings according to the research objectives were as follows:

1. Indexes for measuring the quality of TV programs for young children using the factor analysis technique.

The study started with desk research and an open-ended questionnaire for children and parents, to gather information about the characteristics of quality programs for young children and family. Then, the indexes for evaluating the program quality, which included factors and items, were developed using an exploratory factor analysis (EFA) technique for data reduction. The indexes were subsequently used in an opinion survey with a sample group of 665, which consisted of parents and children aged 13 or above.

The findings showed that the indexes for measuring the quality of TV programs for young children consisted of three dimensions, and each dimension contained factors and items that were indicators of program quality. The details were as follows:

Dimension of format and content	
Factors	Items
1. Standard and ethics of content presentation	7
2. Promotion of thinking skills and inspiration	4
3. Promotion of learning, capability, and life skills	6
4. Participation of children, youth, and family members	3
5. Compatibility between content and target audience	3
6. Promotion of social values and cultures in compliance with the program's objectives	5
Dimension of moderator	
Factors	Items
1. Professionalism	6
2. Positive attitudes, carefulness, and good interpersonal skills	4
3. Communication, expression, and personality	5
Dimension of presentation techniques	
Factors	Items
1. Picture, sound, and activity techniques	4
2. Production and presentation techniques	9

Table 1: Indexes for measuring the quality of TV programs for young children

2. Results from testing of the quality rating system for young children and family's TV programs

Using the questionnaire that had been developed from the attributes and indexes for measuring the quality of TV programs for young children, a survey was conducted to assess the perceptions and opinions of the target audience toward two selected children's TV programs. The sample group consisted of 552 viewers of the two programs across the country, aged 13 or above. Data were collected by a cross-sectional study, using face-to-face interviews with general viewers, online surveys through the project's online platform, and online surveys with fans of the channels through the channels' online platforms.

The criteria used in the selection of the two children's TV programs for the testing were 1) being broadcasted both on digital terrestrial TV and online and 2) having a moderate to high audience rating prior to the testing period. The first program (Program A) was a family show that invited children to showcase their talent in exchange for the opportunity to win their desired gift. Program A was aired on a commercial TV channel. Another program (Program B) was a science show for preschool children that presented science experiments in a form of

animated demonstrations. Program B was aired on public broadcasting TV. The media organizations and producers of both programs also agreed to participate in the testing.

In the testing, the sample group would be asked to rank their opinions on whether each program possessed the factors of quality. The scores ranged from 1 to 5, with 1 being 'strongly disagree' and 5 being 'strongly agree'.

The values of the scores collected from the indicators were calculated based on the average of each dimension's factors. The interpretation of the average score of viewer opinions was the following:

1.00 - 1.80 represents a program with very poor quality
1.81- 2.60 represents a program with poor quality
2.61 - 3.40 represents a program with acceptable quality
3.41 - 4.20 represents a program with good quality
4.21 - 5.00 represents a program with very good quality

If the program had an average score of 2.61 or higher, it would be considered to meet the media quality rating criteria.

The findings showed that both TV programs met the media quality rating criteria, with an average score of at least 2.61 in all factors. The average quality score of both programs was also at a very high level for all dimensions (with scores between 4.21 and 5.00 in all factors), as shown in Table 2.

TV programs for young children and families	Dimension			Average score	Quality rating result
	Format & content	Moderator	Presentation techniques		
Program A	4.49	4.64	4.44	4.52	Met the media quality rating criteria
Program B	4.21	4.31	4.21	4.23	Met the media quality rating criteria

Table 2: Quality rating result for the young children and family's TV programs

The results of the media quality rating from the viewer survey on each factor of the two programs were as follows:

1) For Program A, overall, the viewers rated the program quality as very good. The dimension that received the highest score was the program moderator (4.64). The top factor that the viewers rated as having very good quality was "positive attitude, carefulness, and good interpersonal skills". The viewers saw that the program moderator had good interpersonal relationships, encouraged and praised others, and had a cheerful, fun, and lively personality. In addition, the second factor that the viewers rated as having very good quality was "communication, expression, and personality". The viewers saw that the program moderator had a pleasant voice and good expression.

The dimension of format and content was also rated as very good (4.49), with the top two factors (both receiving equal scores) being "promotion of thinking skills and inspiration" and "compatibility between content and target audience", as the program content was seen as motivating and inspiring for children and young people and also enjoyable for families. The third highest-rated factor in this dimension was "promotion of learning, capability, and life skills", as the program content was seen as encouraging children and young people to express themselves.

Similarly, in the presentation techniques dimension, the overall quality of the program was rated as very good (4.44). The highest-rated factor was "picture, sound, and activity techniques", which the viewers saw as entertaining and engaging. Another factor that received a high score was "production and presentation techniques". The viewers saw that the program had a good atmosphere and could attract the audience's attention. The program was also seen as using an interesting storytelling method and a logical sequence of events, which made it easy for children to understand.

2) For Program B, overall, the viewers also rated the quality of the program as very good. The dimension that received the highest score was the program moderator (4.31). The factor with the highest average score was "communication, expression, and personality" (4.35). The viewers saw that the program moderator used easy-to-understand and accurate language, spoke clearly and politely, had manners, and knew how to make jokes.

In terms of format and content, the program was rated as very good (4.21) as well. The top two factors that received the highest score, both equally, were "promotion of thinking skills and inspiration" and "compatibility between content and target audience". The viewers saw that the program content could inspire and motivate young children while also creating joy for them as the target audience of the program.

Likewise, the presentation techniques of the program were rated as very good overall (4.21). The factor that received the highest score was "picture, sound, and activity techniques", which included engaging and entertaining visuals and sound. The viewers saw that the program had a lively atmosphere. The "production and presentation techniques" dimension also received a high score. The program was able to engage the audience with interesting storytelling and a well-structured plot that was easy for children to understand. The program also had attractive graphics that was suitable for the content.

Conclusion & Recommendations

After the testing of the media quality rating system, there was feedback from various stakeholders in the television industry, including media professionals, media organizations, media producers, scholars, regulatory organizations, and media professional organizations, on the development of a quality rating system for children and youth's programs. Based on such feedback, here are the proposed recommendations for improving the quality rating system for young children's media:

1. The weight of the indicators in each dimension should be balanced, with the highest weight given to the format and content dimension, followed by the moderator dimension and the presentation techniques dimension, respectively.

2. The indicators should be divided into two groups: 1) core indexes, which are the quality characteristics of the media type in question, and 2) additional indexes, which are based on specific features of each sub-program.
3. The indicators should be used to assess programs from the viewer's perspective as well as in the production process.
4. In evaluating the program quality through viewer surveys, there must be adequate representation of a demographic group of program viewers. Also, data should be collected from the groups that are familiar with the program but have not watched it or have stopped watching it in the present.
5. Updating the data collection methods to reflect the opinions of the target audience, specifically children and young people, is necessary.

The quality rating system should be reviewed and updated regularly to ensure its effectiveness and relevance. This will establish a standard and accepted system among media professionals, audiences, regulatory organizations, and media organizations for the benefit of Thailand's media ecosystem in many ways. For example, this quality rating system can be used as a tool to guide the public in choosing quality media by themselves and to enhance their media literacy skills. It will also provide information about media quality to government agencies, which can then implement positive measures to promote quality media such as funding, tax breaks, awards, or other incentives to motivate media producers to improve the quality of their work. Furthermore, it can serve as feedback for media producers on their performance in terms of quality and help them make necessary improvements. This will lead to the development and promotion of safe and creative media in Thailand in the future.

Acknowledgments

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The Disaster Risk Reduction in the COPE Floods Storybook for Children's Awareness to COPE With Natural Disaster

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Abstract

Geographically Malaysia is characterized by two monsoon regimes, the Southwest Monsoon and Northeast Monsoon. The Southwest Monsoon is drier in most states, which happens from the end of May to September. The Northeast Monsoon brings heavy rainfall, mainly on the east coast of Peninsular Malaysia, from November to March. However, in December 2021, continuous heavy rainfall for two days caused heavy floods that hit an unexpected area in Klang Valley. The flood victims have suffered loss and trauma, specifically young children who considered this their first unexpected natural disaster experience a natural disaster. The events make young children resilient in overcoming their saddened loss because of the flood. Thus, this study identifies children's readiness in early preparedness for floods and the usability of the COPE Floods storybook for children's awareness of flood disaster risk reduction. The COPE Floods storybook relays the DRR messages to children as the story's plotline relatable stories, coping tools and preparedness, which is easy to understand. The qualitative method was adopted using interviews to understand in depth how children cope with the loss and trauma caused by floods. The interview was done with children who have experienced floods. The findings indicate that children show awareness after having experienced the floods and mentioned that they could be well prepared if the floods happened again by following the DRR messages relay in the COPE Flood.

Keywords: Natural Disaster, COPE, Floods, DRR, Storybook

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Introduction

Malaysia has humid weather throughout the year. Typically, Malaysian climate is influenced by the winds blowing from the Indian Ocean, which cause two monsoon seasons. The southwest monsoon in between May to September and commonly cause floods on the southwestern coast of Sabah (one of the states in Malaysia). The northeast monsoon, between November to March, affects the east coast of Peninsular Malaysia. Over the past four decades, rainfall intensity has increased and has worsened the flooding (NADMA, 2021). As a result, the climate change scenarios forecast that Malaysia will experience increased natural hazards and disasters. Flood is a major natural disaster that is facing in Malaysia (Haliza Abdul Rahman, 2018). Furthermore, in recent years, the development of the urban area and the growing urban populations may be exposed to flash floods caused by heavy rainfall (Malaysia Disaster Reference Handbook, 2022). As more risk-prone areas have developed, the impact of disasters has increased worldwide.

In 2018, the National Disaster Control Center (NDCC) has recorded as many as 110 catastrophic events across the country. A total of 66 incidents or 60.5% of these were floods, 26 incidents or 22.9% of them were storms, 9 incidents (8.2%) were a fire, and 3 (2.7%) incidents were landslides (NADMA, 2018). The worst floods were recorded in the Southern Peninsular Malaysia during the 2006/2007 monsoon (Tang, 2019). In 2014, the big yellow flood is considered the worst floods once again were recorded in Southern and East Coast Peninsular for the past 50 years. This incident resulted in 25 deaths of 541,896 victims from 136, 447 families were moved to 1335 evacuation centers (NADMA, 2018).

However, in December 2021, Tropical Depression TWENTYNINE hit Peninsular Malaysia which made landfall in Kemaman District at Terengganu State on 17 December, with maximum sustained winds of 46 km (about 28.58 mi)/hour (Malaysia Disaster Reference Handbook, 2022). The disaster displaced 40 000 people to evacuation centres, including young children, old folks and vulnerable people in Terengganu and Kelantan, the north-eastern state of Malaysia (ECHO, 2021). Within three days, the storm caused severe flooding in Malaysia's five states (Kelantan, Terengganu, Pahang, Selangor, Negeri Sembilan, Kedah), partially in the towns and villages (NADMA, 2021). In addition, the heavy rainfall, which began on 18 December has lasted more than 24 hours, was equivalent to rainfall for a month (Bedi, 2022). Historically, Selangor state particularly Taman Sri Muda, Shah Alam has been the most affected by severe flooding, which caused 25 deaths (Malaysia Disaster Reference Handbook 2022).

Among the victims are children that have to share the burden created by the disasters, both in the near and long term (Back, Cameron & Tanner, 2009; Pfefferbaum, Pfefferbaum & Van Horn, 2018). Mohammadania et al, (2017) also stated that children are a major group that is affected by disasters worldwide and it seems to be a unique field to consider in understanding how children prepared for the disasters.

Natural Disaster Impact on Children

Children are more severely impacted by disasters than adults (Pfefferbaum, Pfefferbaum & Van Horn, 2018). During the experience of natural disasters, young children are especially vulnerable in receiving the resources for disaster preparedness and response (Wiessbecker et al., 2008). Researchers at Lancaster University (2016) found that children that were affected by floods impacted their well-being. These include loss of valued personal and family

possessions, familiar spaces, lack of education provision, the experience of fear, anxiety, lack of sleep and recreation and deterioration in the diet. Although children's well-being is affected, children are not passive victims (Peek, 2008).

According to Lancaster University's researchers (2016), children play an important role in helping their families, neighbours and communities to recover from flood disasters. Children at this stage would be able to respond positively towards any pre-occurrences of a natural disaster if only they receive early prevention (training and psychoeducation) and exposure that can prepare them to face the crisis of a natural disaster. For example, researchers in Bangladesh have analysed that children play a significant role in Disaster Risk Reduction during floods in Bangladesh (Martin, 2010). To educate children on DRR knowledge, activities like games, storytelling and puppets would enhance their understanding of the importance of early preparedness.

COPE Floods storybook

COPE is a storybook series about natural disasters with Disaster Risk Reduction (DRR) messages for children written by Martha Keswick, illustrated by Mariko Jesse, and edited by Dr Timoty Sim. There are nine series, including droughts, volcanoes, storm surges, cyclones, earthquakes, landslides, wildfires, heatwaves, and floods. COPE is the acronym for the squad, namely Candy, Ollie, Ping and Eddy. The squad is led by Grand Mistress Fu, a martial art teacher and the founder of the COPE Academy situated at Mount Emei, Sichuan Province, in China. Every COPE squad has experienced and survived a natural disaster in their hometown. Therefore, they were recruited by Grand Mistress Fu to be the Disaster Risk Reduction agents. The DRR agent's role is to spread awareness and educate children worldwide on the importance of survival in specific natural disasters at specific locations in selected countries.

In this study, the series of COPE Floods is used as floods are the prominent and frequent natural disasters in Malaysia. The story plotline is based on the Kelantan states, where the worst floods in history were when the story was written. The plotline is significant to the flood's disaster in December 2021, which has affected the uncommon flood area. Hence the objective of the study is to identify children's readiness in early preparedness for floods and the usability of COPE Floods storybook for children's awareness of flood disaster risk reduction.

Methodology

This study adopts a qualitative research design using semi-structured interviews as the main instrument to understand children's readiness in early preparation for floods. The study was conducted in a private preschool in Klang Valley in October 2022. In the study's context, four children aged six years were chosen as the purposive sampling. They were chosen based on the respondents' experience with natural disasters, preferably floods. The criteria also included the ability to read and comprehension skills to understand the story plotline. The children were coded as C1, C2, C3 and C4 to maintain their privacy and ethics in reporting incidents they have experienced in this study.

The interview protocol was designed based on the text in the COPE Floods storybook. The text was written according to the scientific advice from the meteorological experts at the Hong Kong Observatory. The text is also based on the adaptation of the big yellow flood

events in 2014 in Kelantan state. Table 1 shows the adaptation from the text to the interview questions. The data were transcribed using thematic analysis.

Table 1: The adaptation of COPE Flood text to the interview questions.

Page	COPE Flood text	No	Interview questions
12	Today we will focus on the most common natural disaster Flood …	1	What is a flood?
13	and learn the most important message … EVACUATE	2	What would you do if there was a flood?
14	Now COPE, what should you do before a Flood?	3	What should you do before a flood?
16	And during a Flood?	4	What should you do during a flood?
18	And after a flood?	5	What should you do after a flood?

Conclusion

The findings identified that children have difficulty defining floods. Researchers have to explain the floods in the context of children's level of understanding. For some time, children can recall the events that they have experienced in December 2021. Children also tell a story based on their real-life experiences and what they must prepare when floods happen again. The COPE Floods story assists children to recognize the rescue and prevention that they have gone through. Based on the interview, there are several themes that emerge.

Heavy rainfall

In children's perspective, a flood happened when heavy rainfall pours over several days non-stop. When asked what is a flood? Some children said that flood is '*heavy rainfall … many many days*' (C3) and '*non-stop raining all day long*' (C2). Meanwhile, children C1 and C4 said in a synchronized answer that '*heavy rainfall*'. The answers are predictable as heavy rainfall lasted more than 24 hours when floods happened.

Resilience

At the beginning of the session, children were consensus saying that they must follow the rescuers to safer places and must leave their homes when asked what they should do when floods happen. Besides, some children were resilient towards their flood experiences, as they can cope with natural disasters as the child was saying '*when flood we safe ourselves first, listen to the fireman, stay with mom, dad, sister and don't cry*' (C2). The child also said '*when floods, I need to save my grandma... my grandma could not walk, I am strong, and I can save my grandma*' (C1). However, the other two children were following their friends' answers and agreed to their answers.

Using the text in the COPE Floods storybook, all children read the word '*evacuate!*' in synchronisation when asked what they should do before the flood. Evacuate is no longer an alien word to children, as they were recalled, that is the word the rescuer often uses for them to save themselves and their family at the evacuation centre. In their cases, children were evacuated to the school located on higher ground. Children telling that they ride on a fireman boat to the school as they could not walk in the flood, '*it's dangerous... I might be drowning if I walk in the water*' (C4).

Early preparation

Based on children's flood experiences, they are not ready when it happened. It is a sudden event that caused them to leave their house and belongings at the evacuation centres. When asked what they should do before, during and after floods, child C3 said '*I have to pack my things and bring them with me.*' Children C1 continued by saying '*listen to the warning... news announcement.*' The answers are significant with the text in COPE Flood which stated the list of early preparations for floods. Children also chant that they cannot play with flood water and must bring the important basic needs for them such as handphone, food, clothes, torchlight and toys. This indicates basic knowledge through experience that children have gone through and are able to cope with natural disasters through early preparation.

Discussion

Children are vulnerable individuals during natural disasters as psychologically it will affect them. The six years and below are the crucial years for children to explore the world in gaining foundation knowledge for learning development. Within these crucial years, children build their psychological well-being by adapting and adopting real-life experiences in any manner that they have been exposed to. Hence, early awareness and preparation are necessary for children to build resilience and cope with confidence in what they should do during a natural disaster, particularly floods in this context.

The study shows that storytelling with picture books which illustrate disaster risk reduction messages enables children to better understand preparedness. The emphasis on before, during and after a flood in the COPE Flood storybook describes children's aware of preparation. Children have the right to know how to prepare not only to save themselves but also to help others. Given the knowledge to children may contribute to the high impact on children's well-being. These include the ability to build resilience, value family relationships, and awareness of the risk of natural disasters. Therefore, it is vital to create awareness for young children as it will build a better understanding and resilience community in future.

Acknowledgement

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Learning From Events

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Abstract
What can be learned from the successful production of large-scale real-world arts events that is useful in the classroom? Through practical examples, this paper attempts to make some connections. We start with a short story of how the same software came to be used to deliver university-level classes on AI and also co-ordinate the international artists of a week-long international festival. Next, we present a series of sections with titles drawn from the literature on events management and related fields. Each section suggests parallels to educational practice. Presented themes are "Selection of resources", "Preparation is everything", "A sense of place", "Event (and video) cycles", "The importance of catch", "The interest curve", and "What is a producer?" The discussion is a kind of "reflection-on-practice" linking two fields. The hope is that educators may come away with some new perspectives and concrete ideas for action. With the Corona pandemic channelling much delivery of educational content into the dimensions of a Zoom screen, recent years have presented an impetus to regard class time as a "production", with diverse visual and audio components that can be switched and modified in real-time. Evidence of the effectiveness of teaching "produced" in this way is presented based on student feedback and evaluation of specific aspects of class delivery.

Keywords: Event Production, Dashboards, Low-Code Interface, Resource Selection, Event Cycle, Interest Curve, Design, Video Contents

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Introduction

This paper is a "reflection-on-practice" (Schön, 1983) of parallel work in the fields of event production and education. Specifically, it discusses one international arts festival and four university classes that were significantly affected at the start of 2020 by the Corona pandemic, and how re-creating the classes in a new online environment was the inspiration to carry over ideas from the world of events. The paper draws on sources from the events literature, especially the authoritative "Special Events" (Goldblatt, 1997).

The classes forming the basis for the educational reflection were delivered to university-level students in Japan in technical subjects related to AI. It was fortunate that the host university afforded educators significant leeway to continue experimenting with fully online classes for a full three years.

By viewing class environments through the lens of event production, we discuss how the pivot to online gave new impetus to consider the opportunities for:

- uniqueness/ceremony and ritual,
- resource use, and
- cyclical growth.

Evidence of the effectiveness of teaching "produced" in this way is presented based on student feedback, and evaluation of specific aspects of class delivery.

The paper starts with some background and motivation from the author's experience in events. Next, it presents a series of sections with themes drawn from the literature on events management and related fields. Each section suggests parallels to educational practice. The extensive possible list of themes was compressed for space considerations to "Selection of resources", "Preparation is everything", "A sense of place", "Event (and video) cycles", "The importance of catch", "The interest curve", and finally "What is a producer?"

A Story

In August of 2019, the author was sitting with a friend in a cafe discussing the arts festival that together we had just finished producing. We were tired. The festival was in its 12th year and was experiencing some success. Over 12 years, we had brought over 2,000 artists from more than 50 countries to Japan, and the event had grown to a full-week fixture in the local summer calendar. Working on this as volunteers in addition to our main jobs, the event scale was exceeding our ability to control the logistics.

There are apps for just about everything, and festival management is no exception. Some companies also offer tailored systems, but the attractive interfaces are typically paired with unattractive prices. A further complication was that to support an international user base, we required an environment with extensive support for both English and Japanese.

Developments in cloud computing and low code environments have encouraged a "roll your own" approach, so we attempted to create our own low-cost solution. We were attracted to the online collaboration system "Airtable" by the way it offered both flexible back-ends and also approachable interfaces. For some months, we made promising progress, especially

making extensive use of the "dashboard" feature, of which Figure 1 shows an actual example from our event.
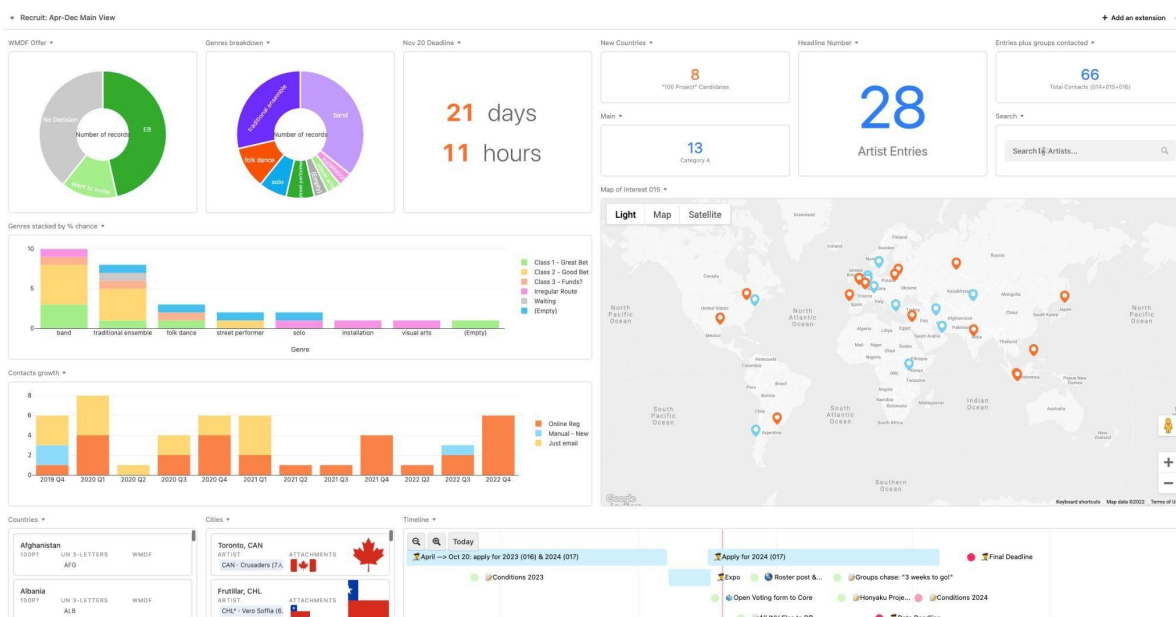
Figure 1: Screenshot of Airtable dashboard developed for WMDF event (http://wmdf.org)

When the Corona pandemic changed everything in 2020, the arts world entered a period of extreme challenge, and education performed an online pivot. Since the Airtable platform had proved promising and extremely versatile for event management, applying a similar framework to classes presented itself as an obvious extension. Several factors combined to make this jump to a tailored learning system based on Airtable appealing: first, the four courses being taught by the author were outside any LMS environment, so there was no "sunk cost" of invested time: development could start from a blank canvas. Secondly, the one obvious alternative candidate LMS — the system deployed by the host university for the classes — was due for retirement in one year, with the replacement system undecided. And thirdly, the dashboard functionality in particular had proved very useful in the field of events, yet seemed to be unavailable in other education-focused systems.

An example of a dashboard from the system resulting from the educational application of Airtable is shown in Figure 2 on the next page (the example is from an actual class, with any details that could identify individuals masked). As with the events dashboard, the interface is itself interactive, allowing functionality such as template-based auto-generation of email windows, initiation of auto-translation scripts (students generally write in their native Japanese for these classes), and automated creation of "portfolio"-style pdf documents for students to use as physical records of their activity history in a class. In general, the use of Airtable provided configurable real-time monitoring and reporting features that allowed class time to become more interactive. For a more detailed presentation of the teaching ideas and rationale behind the interface, and of the overall *koto-tsukuri* educational philosophy motivating the interactive class delivery, see the separate paper "Koto-tsukuri: Education at the Interface" in this Proceedings. The remainder of the current paper uses the staging point of this shared interface as the basis for further reflection on the parallels that can be drawn between a dual perspective on education and events.
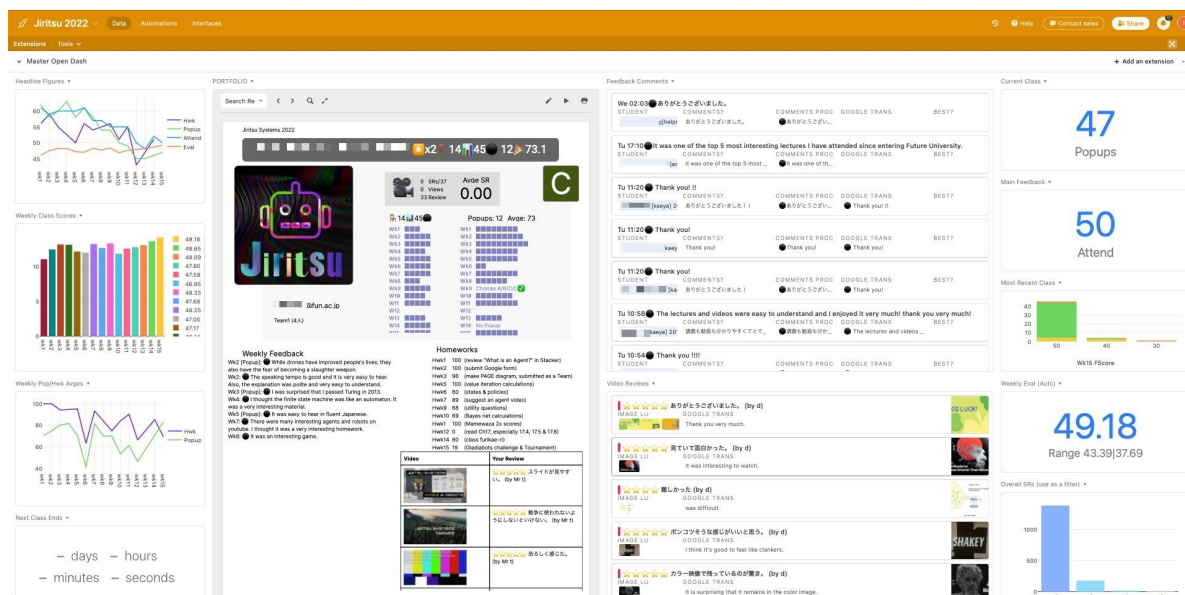
Figure 2: Screenshot of Airtable dashboard developed for class delivery

What is a Special Event?

To ground our discussion, it's useful to establish some events terminology. The Introduction has already mentioned Goldblatt's excellent source of advice for event managers. The book has the subtitle "Best Practices in Modern Event Management", and presents both practical guidelines and concrete stories from direct experience. At the time Goldblatt produced the first edition, there was no established academic discipline for events, so even a definition of the term "special event" was required. In the tradition of naming and framing that Schön (1983) identifies in the "reflective practitioner", Goldblatt's definition is a good basis for the reflection in this paper:

> *A special event is a unique moment in time celebrated with ceremony and ritual to satisfy specific needs. (ibid, P2)*

Goldblatt credits the work of anthropologist Victor Turner as one of the inspirations for this form of words. If applied to education, most educators could probably point to some aspect of their teaching that falls within the boundaries, such as invited talks by special guest speakers to engage and inspire students, or maybe one-off interactive workshops that provide memorable experiences related to class contents. But to what extent would Goldbatt's definition generally be reflected in day-to-day teaching?

This paper will explore aspects of teaching in the light of Goldblatt's definition, with some emphasis on the online conditions of the last three years. The following sections draw their titles from the world of events, with each section illustrated by a student comment submitted in response to class contents via the Airtable LMS. Note that coincidentally, in his recently published memoirs, Goldblatt himself (2019) describes how in the 1970s he taught a series of classes for a continuing education programme for The Open University of Washington DC, including one called *Teaching as a Performing Art*.

Selection of Resources

> *"I thought it would be interesting if a mini hologram of Professor Ian appeared in front of me and taught the class."*
>
> — *Student feedback, 2022*

This tongue-in-cheek class feedback from a student is technically feasible (for example, Hologauze® is produced by events industry leaders Holotronica), but impractical. Early in Chapter 1 of his book, Goldblatt (1997, p.21) identifies "the rapid changes in available resources" as a key "challenge and opportunity" facing practitioners. The specific prescription for event managers is: "Your challenge is to select those resources that fit... and cultivate them to ensure the highest consistent quality."

At the level of an event, it's usual to interpret the "fit" of resources in terms of finances, time pressure, logistics, available manpower, and the simple market demand of the local audiences and supply possibilities for artists. For a class, the factors to consider might include the size and composition of the class, the different learning objectives, different teaching styles and methodologies, in addition to budget, materials, and technology. It may be common practice to seek feedback from students and other stakeholders to ensure that the resources being used are effective in supporting student learning, but an aspiration to "ensure the highest consistent quality" sets a high bar, and the degree to which resources may be deemed to "fit" may vary greatly among educators, even teaching similar courses at the same institution.

Let's take an example from education that is an extreme outlier: the work of Prof David Malan at Harvard University. A New Yorker article (Orbey 2020) gives an accessible account of the CS50 (Computer Science) course that Malan teaches. The article describes how a team of production technologists works with Malan to "film, edit, and upload not only the course's lectures, office hours, and how-to videos but also a slew of ancillary entertainment". The lectures are filmed in 4K high resolution, and Malan has written that the course's high production value is "part of its pedagogy". The course often employs up to a hundred teaching assistants, and Malan estimates that even just the "human side" of the cost "amounts to at least two hundred thousand dollars a semester."

The article summarises that "CS50's size and privileged status have rankled some at Harvard" citing one student comment "What sort of a class sells merchandise? And how can they afford t shirts for 800 people, along with stress balls, sunglasses, and more? Where is this money coming from?" An event organiser might answer "Maybe, it's quite good classes that have merchandise…", but it's obviously far beyond most teachers to take production to the level of a CS50.

In many education institutions it will be up to individual teachers to establish the limits on time and resources to deliver the "highest" quality. However, for the special case of video, it could be argued that the switch to online presented some compelling reasons in favour of at least some video content. First, there is the way that video makes use of the learning environment: multimedia elements such as images, animation, and audio are a natural fit for engaging students in an immersive way through a Zoom screen. Second, the robustness of video delivery lends the flexibility to adapt to online or hybrid classes, and gives reliability even when unexpected situations occur. Thirdly, videos can be watched at the student's own pace and can be accessed at any time, making them a useful tool for catering to students who learn best in different ways, even when direct observation of the students becomes more

challenging. Finally, videos can be "curated" from third-party sources as well as created specifically for a class. Whatever the provenance, one key in resource selection is offered by Brame (2015): "Make sure the material feels like it is for *these* students in *this* class."

Moving classes online, especially employing videos to present main content, is time-consuming work. The New Yorker article reports that Malan can offset some of the expenses of delivering CS50 classes as "R&D", and this may be a solution available to some portion of educators. Access to financial resources can make it possible for individual educators to save on time (for example, by outsourcing some production requirements) and institutionally, there is the possibility for leveraging economies of scale by introducing central organisations such as "Content Creation Centers" that have the tools and the potential to support educators in the creation of digital contents. The following section details some approaches that were possible without significant financial resources, or the benefit of centralised support. Again, the presentation is framed from the perspective of events management.

Preparation is Everything

> **"***I'm surprised that Zoom goes down. Sometimes, my PC also goes down, and breaks some files…***"**
>
> — *Student feedback, 2020*

The phrase "preparation is everything" is a core refrain for event staff. It embodies the philosophy that everything possible should be done before the gates open. The goal during the event itself should be to just ensure that the schedule is unfolding as it should, and making adjustments or dealing with problems or unexpected opportunities as they arise.

One place to see the effects of preparation in education is in class evaluation. The graph of Figure 3 shows students' class evaluations of 3 years of the author's online classes using a simple 5-point scale evaluation. The Japanese university calendar is split into two semesters, and this data represents student evaluations from four distinct sole-taught classes, two in the first semester and two in the second (a total of over 6,000 unique student evaluations).

The feedback instrument for this data collection is the straightforward question shown in the figure, administered via an Airtable form included at the end of each week's class materials. Students are required to submit a form each week to record their attendance, and the graph represents the data numerically by assigning a score of "100" to the top answer and "20" to the lowest answer, as indicated in the figure.

The graph indicates an overall trend of increasing satisfaction year-on-year and across classes, as well as from the start of a term to the end. For perspective, an average of 95 on this graph equates to three out of every four students selecting the top evaluation and the remaining students selecting the second evaluation. Any student selecting "OK" or below quickly reduces the overall average value.

The low starting values of the 2020 semester reflect the gulf between preparation and requirements at the onset of online classes, and the gradual upward evaluation trend shows that remedies were largely incremental. Detailing all the resources brought to bear over three years is beyond the scope of a short paper, but the illustration of Figure 4 gives an overview that focuses on software and other content services.
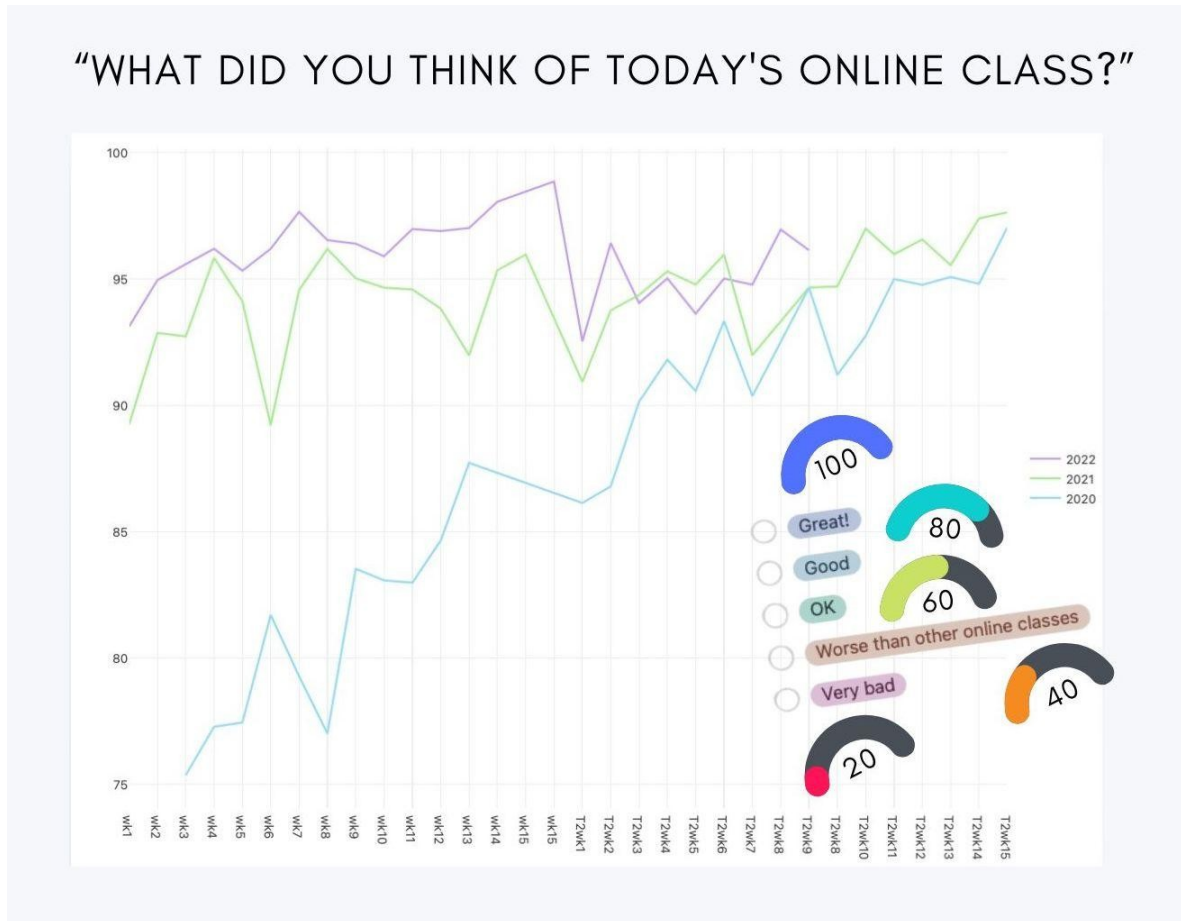
Figure 3: Weekly class evaluation results of 15-week courses, from the start of Corona (2022 classes not yet completed at the time of writing)

Figure 4: Resources deployed over the course of 3 years of online class development

A large amount of preparation time was given to the creation of video resources that brought

the flexibility to "chunk" class time into segments with distinct character. In general, any content of a technically difficult nature was given priority for video conversion, as such content is often "preparation-heavy". Having compact, pre-prepared video for this content can enable students to study and to review the essential aspects of a class at their own pace. The relative ease of presenting other contents (homework reviews, class administration, responding to student written questions) made them the logical choice for "live" presentation, where recovery from errors or glitches is less critical to the successful delivery of the class as an "event."

A Sense of Place

> *"The way the class started was so cool that I want the countdown to continue."*
> — *Student feedback, 2022*

This quote is a recent student reaction to the "splash screens" that were introduced during the second year of online teaching to welcome students who join class Zoom sessions early. Each 15-week course has its own background screen designed to convey the mood of the class, as well as individual background music, and a series of small animation "flourishes" that depict contents covered in the class (e.g, an animated steam engine that recalls class contents on programming train networks).

When staging real-world events, Goldblatt argues that creating a sense of place is essential in creating a feeling of community and belonging among the attendees. He notes that a strong sense of place can be achieved by highlighting and embracing the unique characteristics of the event's location. For real-world events, there are obvious possibilities such as BGM, balloon arches at entrances, physical decorations and eye-catching signage (searchlights placed at four corners of an outdoor event can bring curious locals from miles around). Turnaround times in regular face-to-face classrooms make the design of space a challenge (some levels of education get this more right, with homeroom systems where students that use the same classroom often, and can decorate a space to make it their "own" over the course of an extended period of time). This was one area where, with the mindset of creating uniqueness and some ceremony or ritual, online classes more readily lent themselves to the creation of an experience that had something of the character of an event.

Other more general design considerations such as Goldblatt's explicit directions to consider "all five senses", and a full discussion of the issues surrounding visual identity deserve their own sections. The notion of a sense of place is used here as a representative of one pathway towards Goldblatt's definition of an event, and one that felt like a significant piece in the puzzle of teaching online. One further illustrative example is interesting for the way it grew out of the presence of a constraint. At the start of the switch to online, incorporating a live video feed of the class's host university was considered, as a way of generating atmosphere and maintaining some link to "normal" school life. But, the absence of any webcam (due to privacy concerns) meant that a practice of showing the live camera of the nearest park was started, and this slowly grew into sharing other locations around town, and then around the world, via associations with class contents (the bears of Katmai National Park in Alaska became exemplars of "intelligent agents"). This example of serendipity suggests how, with some attention, a "sense of place" can actually be expanded online, where it no longer needs to be limited by physical location.

Event (and Video) Cycles

> *"I want to watch it over and over"*
>
> *― Student feedback, 2021*

There is no shortage in the literature of multi-stage models for managing and promoting systemic improvement over time. Examples from education include the Plan-Do-Check-Act (PDCA) cycle, the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation) more common in instructional design, and the Kirkpatrick Model, which is a four-level evaluation model that assesses the effectiveness of training (level one, reaction, measures learners' reactions to a training, while level two, learning, assesses what was learned, level three, behaviour, measures changes in learners' behaviour or performance and finally, level four, results, addresses the impact of a training on an organisation).

Goldblatt's "event management process" is a five-step model similar to the ADDIE steps, but with variations in naming: "Research, Design, Planning, Coordination, Evaluation" (Goldblatt, p52). Although not differing in its general concept, the "Event Cycle" of Aleksi Kaunisto (2021) is notable for the way it conflates the first four steps of the ADDIE or Goldblatt model into just "plan, organise", and then dedicates a full three steps for the "evaluation", splitting it into "measure, analyse, share" (see Figure 5).
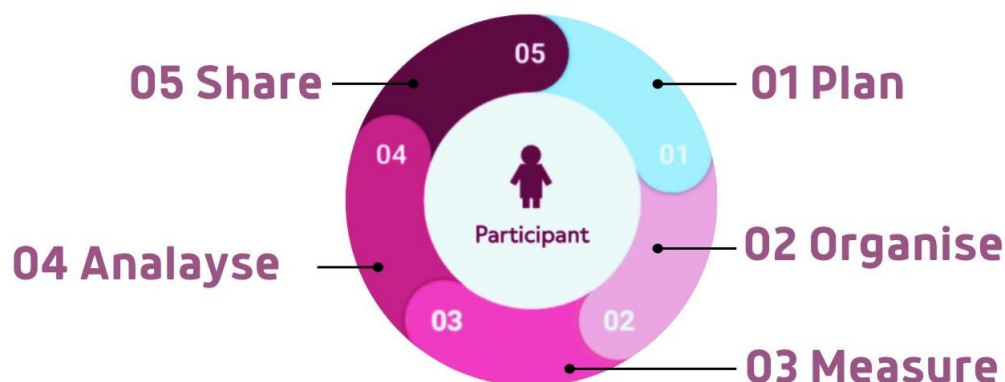
Figure 5: Event cycle with emphasis on evaluative steps, after (Kaunisto, 2021)

One way to explain this changed emphasis is that many events generate an abundance of review material such as photos and videos, and may be supported by audiences only too willing to volunteer feedback. Additional reviews and reactions provided by print media and social media can further enrich the evaluation process. Organisers have a wealth of material to tailor an event to specific audience needs and preferences, leading to more satisfied attendees, who are more likely to return to future editions of the event.

In discussing the effects of the pandemic on the events industry, Garcia (2021) has pointed out that large-scale cancellations "both imposed and enabled much needed time to take perspective and revisit dominant practices". In education, on the other hand, many may have found that already limited time was further challenged to almost impossible extents. Nevertheless, one almost inevitable side-effect of a move to online is an increase in the volume and types of materials that remain as a reference after teaching a class. Pressing 'record' on Zoom is a much simpler operation than videoing a face-to-face session, and especially for classes electing to make use of (short) video resources as we discussed above, the opportunity for review and sharing is increased drastically. Hirsch (2015) uses the phrase "next generation" to describe videos made with the benefit of extensive reflection on

previous experience, and summarises his journey of producing over 100 videos in the context of flipped learning as follows: "Over time, I honed my message, my delivery, and my coverage areas". The topic of "Teamwork" is deserving of its own section when discussing the lessons that can be learned from events, but one concrete yet straightforward recommendation that can be made is the cultivation of a network of supporters willing to help speed this kind of improvement process by providing critical evaluation and honest feedback on both plans and materials.

The Importance of Catch

> *"No AI, No FUN Life"*
>
> ― *Student feedback, 2021*

In Japan, event producers and others in creative industries will be familiar with the term "catch copy". It is an example of a loan word created from English that has no direct English equivalent (the term for this is *wasei-eigo[1]*). The closest translation for "catch copy" may be "advertising copy", but that has a solely commercial feel. The "catch" that event producers in Japan are used to thinking about is more closely connected with the thought of how the text will be presented and the overall design of the message delivery.

The British advertising tycoon David Ogilvy, known as the "Father of Advertising", pointed out that "people do read lengthy advertisements if they are skillfully written". This need for skilful writing is a constant presence in the creation of events. Everything, from group profiles to fliers, websites and social media, even signage, are opportunities to pass on information and feelings in specific ways. It can be disheartening to craft long profiles for artists only to have few people read them, so the natural progression is towards shorter "catch copy", presented in more creative ways.

The carry-over from event experience to class materials is best demonstrated here with a concrete example of the banners created to share student comments and act as a springboard for feedback and discussion in following weeks' classes (see Figure 6). Each week's class materials usually feature several of these designs. With the aid of mixing design and feedback in this way, a single week's class contents can be constructed in one web page, avoiding issues of students becoming unable to follow link trails as a class progresses.

Figure 6: Example Q&A banner for presenting selected student comments

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[1] https://eikaiwa.weblio.jp/column/knowledge/unnatural_english/catch-copy-is-japlish

The Interest Curve

> *"I was very surprised that the class production was wonderful. I am looking forward to the weekly lectures."*
>
>   *— Student feedback, 2021*

The field of computer gaming has a growing intersection with events due to the growth of online gaming, and valuable ideas for online classes can be found in the output of the enormous number of streamers who share their gameplay online. This section makes a more concrete borrowing from computer games in the form of the discussion of "interest curves" provided by Schell (2019) in "The Art of Game Design". Although Schell's book is a design manual organised around principles and rules of thumb that he and other game designers have come to rely on in their practice, the understanding of interest is an important part of events, and the treatment by Schell is an engaging one. We can only give the flavour here, through the example of Figure 7.
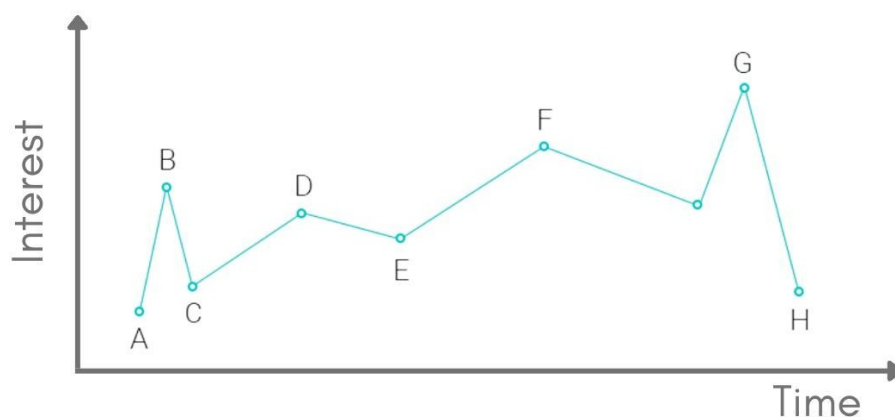
Figure 7: An interest curve for part of a game, after (Schell, 2019, p.301)

This curve starts with a certain degree of starting interest at point A, and then goes to point B, which is an example of a "hook". Both A and B give hints to the future development and help keep attention during the section from C to F. Point G represents a kind of climax before point H, which is the end.

A crucial message from this curve is that the points of high interest are only high because they are contrasted against points of lower interest. This is an easy message to overlook when planning events, or classes. With so many educators faced with balancing the time and resource demands of moving contents online, yet also now with some years of experience to draw upon, it may be that education has reached a stage where research on the pace of classes, courses, and student timetables could be profitable in helping individuals and institutions to better understand how to create effective and engaging online classes, especially in this era of "Zoom fatigue" (see Bailenson, 2021).

What is a Producer?

> *"I'm sad it's almost over"*
>
>   *— Student feedback, penultimate class, 2021*

There are many possible emotions that students can experience when completing a course. The above feedback comment provides a point of departure to look at the nature of what it

means to be a "producer". If we again turn to Goldblatt (1997, p224-225), we find the summary that you need to "research, design, and plan, but also must coordinate all of the event elements" and "must never allow your own taste to be compromised" as you "...challenge to produce the very finest......with the time and the logistical and financial resources that may be allocated." The emphasis on resources and quality were encountered already above, but here Goldblatt provides the additional logic that "your next opportunity to present an event is directly tied to the one you produce today" (*ibid)*.

The experience from events is that this link between performance and future opportunity is keenly felt (the show business maxim is "leave them wanting more"). In contrast, there may be areas of education where some instead feel there is disincentive to teaching well. Rather than better pay or new opportunities, high performance may be more correlated with larger class sizes and more students. Additionally, in a system where funding is tied to student enrollment, institutions may feel pressure to focus on recruiting and retaining students rather than improving the quality of their instruction. This can lead to a situation where educators are rewarded for quantity over quality, which may not be in the best interest of students or the education system as a whole.

In the past, it may have been that educational job security and advancement were often tied to student performance, but educators now may be evaluated based on a variety of factors, such as their ability to implement new teaching methods, their ability to integrate technology into the classroom, and their ability to collaborate with other educators. This shift may also have resulted in a disconnect between an educator's performance and their job security and advancement.

But while such shifts may have brought about new challenges for educators, they have also opened up opportunities to explore new methods of teaching, to experiment with new technologies and to develop new skills. The period of the pandemic since 2020 has coincidentally been a time of rapid progress in the field of AI, with the ChatGPT release falling during the ACE conference, and a growing awareness that machine learning systems will be able to significantly alleviate some of the time costs that to date have inevitably accompanied core production requirements such as text, design and even video. One student's expression of hope for the future may be a good way to close:

> *I think ChatGPT will pioneer a new kind of education, one that will require more creative thinking, assuming AI tools are used.*
>
> — *Student feedback, January 2023.*

Conclusion

From a starting point of the experience of using Airtable to create databases and dashboard visualisations, we have looked at some possible crossovers between the fields of event management and education. Although not so commonly considered together, both are practices that require a high degree of organisation, attention to detail, and the ability to adapt to unexpected challenges. Additionally, both require a deep understanding of the audience and the ability to engage and meet their needs. We looked at the role played by selecting resources to fit circumstances, preparation and a sense of place, cycles of improvement for sustaining or developing quality, and the notion of what it means to be a "producer". Overall, if there is something here that can aid in framing, understanding and navigating the rapidly

changing landscape of education, especially online, we may look forward to raising the curtain on the following acts with a refreshed cast of characters.

Acknowledgements

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Koto-tsukuri: Education at the Interface

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Abstract

The move to online was a serious disruptor. We reflect here on almost three years of fully online educational work at university level in a science-based curriculum in Japan. Presented as a workshop at the conference, participants experienced a real-time deployment of a class management system put together with low-code tools. Initial setup was to log in, interact, and see an automatically generated dashboard that visualises the workshop's progress. The technology is one kind of "interface". A second and more important "interface" is the motivation behind the approach. The full paper describes how a move to online classes based on the presented low-code system increased student-student and teacher-student interactions and also the interaction of both student and teachers with the learning environment. We discuss how the Japanese concept of *koto-tsukuri* was part of the motivation and framing of the work. The paper also presents evidence showing a significant increase in student satisfaction corresponding to the introduction of these ideas. This is done using data from a university-wide assessment tool that asks students to identify all classes that are in the top 10 percent of those they have ever taken. The average rating based on this instrument increased around twofold between 2019 and 2022. For the workshop, participants were told that they should come prepared to think, to interact, and to physically do a few things.

Keywords: Low-Code LMS, Dashboards, Video Contents, Disruption, Experiential Learning, YouTube, Creator Economy, Educational Futures

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Introduction

Improvements in computing power, networks, software, and video technology resources have seen the rise of the "creator economy". Before Corona, it was possible to see the possibilities for education as distinct from this trend: "live" classes in physical rooms could be considered a privileged space. But, faced with the abrupt shift to online teaching in 2020, some educators may have been unsure of how to escape from a figurative hole to find the solid ground of effective online contents.

This paper reports the subjective experience of one attempt at "climbing out". From the start, the hole had the feeling of being at least three years deep. At the time of writing, there are still a few months of the third year to go, but there is just enough scope for some reflection.

This paper will use the Japanese notion of *koto-tsukuri* as a framework to shape and to motivate the discussion. The word *tsukuru* is a Japanese verb meaning "to make" or "to create", but to explain *koto* requires a dedicated section. After this background, we introduce a low-code LMS tailored for flexibility, and discuss how the system was used to manage video content and to allow students to share experiences. Examples are drawn both from actual classes where these approaches were used and also from the workshop that formed the presentation vehicle at the ACE conference. Finally, evidence of effectiveness is presented from online teaching in four 15-week science classes at a technical university in Japan.

Koto-tsukuri

The idea and motivation of *koto-tsukuri* has been a persistent background to the author's educational work, for example, see Frank & Field (2007) or the site www.koto-tsukuri.org. The basic concepts can be presented by the diagram of Figure 1, which shows a rendering of a sketch drawn by the Japanese scholar Minakata Kumagusu (the sketch featured in a letter he wrote in 1893; the photo of him in his youth is from WikiMedia Commons).

Kokoro
(heart/mind)

Mono
(things/environment)

Koto
(intersection/interface)

MINAKATA KUMAGUSU (1867 – 1941)
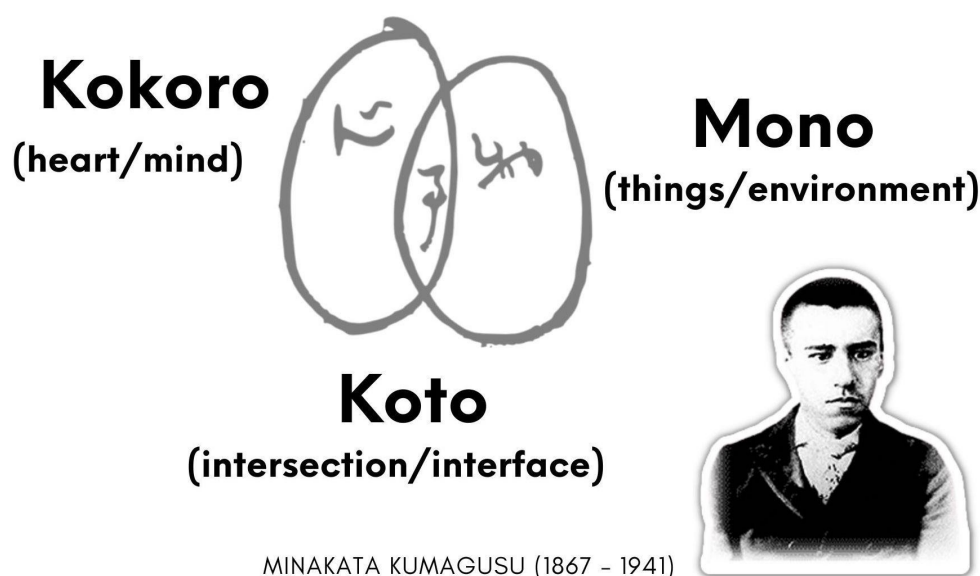
Figure 1: Diagram illustrating *koto* penned by Minakata Kumagusu

The diagram defines the essence of *koto* as being the intersection of the inanimate (things, environment, *mono*) with the animate (heart, mind, *kokoro*). The extension of the term to

include the verb *tsukuru* denotes the practice of working to increase the size or aspect of this intersection. One of Kumagusu's passions was biology, and another way to approach his ideas on *koto* is through the notion of "ecology", which for brevity we frame with this core definition:

> *the totality or pattern of relations between organisms and their environment*
> https://www.merriam-webster.com/dictionary/ecology

There are many pedagogies that focus on interaction and student engagement in the learning process, including active learning and problem-based learning (PBL). There are also approaches with an emphasis on aesthetic aspects, such as Learning Experience Design (LXD, see https://lxd.org). One way to consider *koto-tsukuri* is as a lens that allows these multiple educational approaches to be viewed through the way that they build and encourage interactions between participants and environment.

For example, consider how active learning involves hands-on and interactive activities that encourage students to actively construct their own knowledge and understanding, rather than simply receiving information from a teacher or other source. The perspective of *koto* intersections between learner and environment is evident in active learning practices such as discussions, collaborative projects, and experiential learning. PBL is more focused on solving real-world problems and challenges as a way to learn new concepts and skills, and here it can be the small-group brainstorming, research of relevant information, and presentations of findings that bring *koto* aspects. In terms of design, it can be the recognition of the importance of challenging visual and other senses in constructing the learning experience.

Since a change in "the environment" was one of the defining overall impacts of the pandemic on education, *koto-tsukuri,* with its emphasis on relations between people and environment, offered obvious potential for approaching the new circumstances. In the language of the "reflective practitioner" (Schön, 1983, pp. 39-40), *koto-tsukuri* represented one path towards constructing responses to "problematic situations which are puzzling, troubling, and uncertain" by offering a way to help "name the things to which we will attend and frame the context in which we will attend to them".

This framing of privileging and aiming to enrich the totality of students' and teachers' interactions with an environment can suggest new tools, new ways to use existing tools, and also encourage the searching out of helpful educational practices or frameworks. To demonstrate from experience, the list below presents specific features of the online classes delivered by the author over the past three years, using the categories described by (Kennedy 2020) in a Melbourne CSHE discussion paper addressing engagement in online learning:

- **Interaction.** Free form student feedback at the end of each class; Popup quizzes tied to each week's content; small-group Zoom breakouts for watching weekly video content and answering popups; student video reviews shared in-class. **(**Note that the discussion paper's sub-categories of learner-instructor, learner-learner, and learner-content interaction omit the combination "instructor-environment interaction". Improving this category of interaction through a dashboard interface that enhances an instructor's ability to monitor and to react to a class in real time is one aspect of the description of the LMS in the following section).

- **Interactivity.** OBS (https://obsproject.com/) software for incorporating professional broadcasting elements (overlays, information boxes, insets, tickers, special effects) real-time into a class; the site whiteboard.fi for group ice-breakers & illustrative tasks; CommentScreen for interactive scrolling display of chat comments.
- **Design.** Feedback on student comments presented in graphical "Q&A" style; videos produced to high audio and visual standards; web page class materials environment bit.ai chosen for its design credentials; low-stakes and frequent assessments.

Concrete examples of some of the above practices can be found in the following sections, as well as a description of the low-code LMS that was developed to help deliver the interactive functionality. Before moving on, let us also touch briefly on some of the less quantifiable aspects of the shift to online. One reaction that seemed often-voiced was the sharing of a dislike of a teaching tool, whether Zoom, MS Teams, or some other online video-based system. It's understandable: that thing in the environment that changed, that thing that's not you and not me, that is a good place to hang some frustration. But at the same time it was also possible to appreciate a different pattern of relations in the shared experiences of online classes. Some educators working from home may have felt the change in atmosphere that comes from inviting students into their personal spaces to study. Many students and teachers may have found that they did not miss the need to travel before 9am classes (*"Thanks to this class, I was able to wake myself up!"*). Possibly, there were new experiences of the class dialogue drifting to unusual things: the occasional distractions of daily life in the neighbourhood, or the differing experiences of weather across locations (*"I couldn't hear the thunder in my room when the teacher said, "Thunder!" So, I counted the number of seconds until I heard it and calculated the distance of my room from the place where the teacher was. I am not sure if it is accurate because it does not consider the time difference of the network."*) If teaching in an environment where the students have their cameras turned off, an instructor is even free to imagine an audience far more rapt and understanding than before, with no hindrance of visual feedback to dissuade from the pleasant fantasy.

Deeper discussion of these aspects of the online experience is for a different time. Since the development of a home-brew LMS system was a more concrete part of interfacing online, we move on to introduce first the system itself, and then some ramifications.

A Low-Code LMS

A separate paper in this proceedings ("Learning From Events") details how the selection of the "Airtable" database platform for implementing an LMS had its roots in the creation of administration platforms for arts events. The goal in the current paper is to describe the mechanics of the developed system, give some examples of how it was used to create experiential workshops (at ACE and elsewhere), and then present evidence of student satisfaction from classes using the platform in university classes over three years.

For teaching purposes, Airtable allows an educator to easily set up a database back-end that maintains all necessary per-student data, and can facilitate the monitoring of all data and progress through summaries as well as with graphical interface extensions that produce functional and attractive visualisations. It can also serve as a centralised repository to bring order to class resources, such as a database of videos, or weekly quiz questions and answers. It has a built-in forms feature that allows for the collection of data directly into a database.

While the form capabilities are currently comparatively basic, it is also possible to use automations to transfer results from other platforms into an Airtable base, for example from Google Forms or TypeForm. These features combine to make Airtable a convenient way to bring together student and class information in a centralised resource.

To provide each student with individual access that allows them to view and to edit data, a second software service, Stacker, is more cost-effective. Both Airtable and Stacker are subscription services, but the per-user pricing of Airtable makes it more suitable for the main administrator (the educator), with the per-app pricing of Stacker used to provide an interface for each student (or learner, or workshop participant).

The login process used during the ACE workshop is similar to that required when using the system for classes, and is shown in Figure 2, where the workshop is titled "Interface Workshop". Valid email addresses can either be pre-registered or added in real time with an Airtable form. The latter approach was used to register ACE workshop participants (with clear privacy conditions), and the steps 1 to 4 allowed all to view their own home page in Stacker at the start of the workshop. Most participants carried out the process on mobile devices: the interfaces work well across platforms.
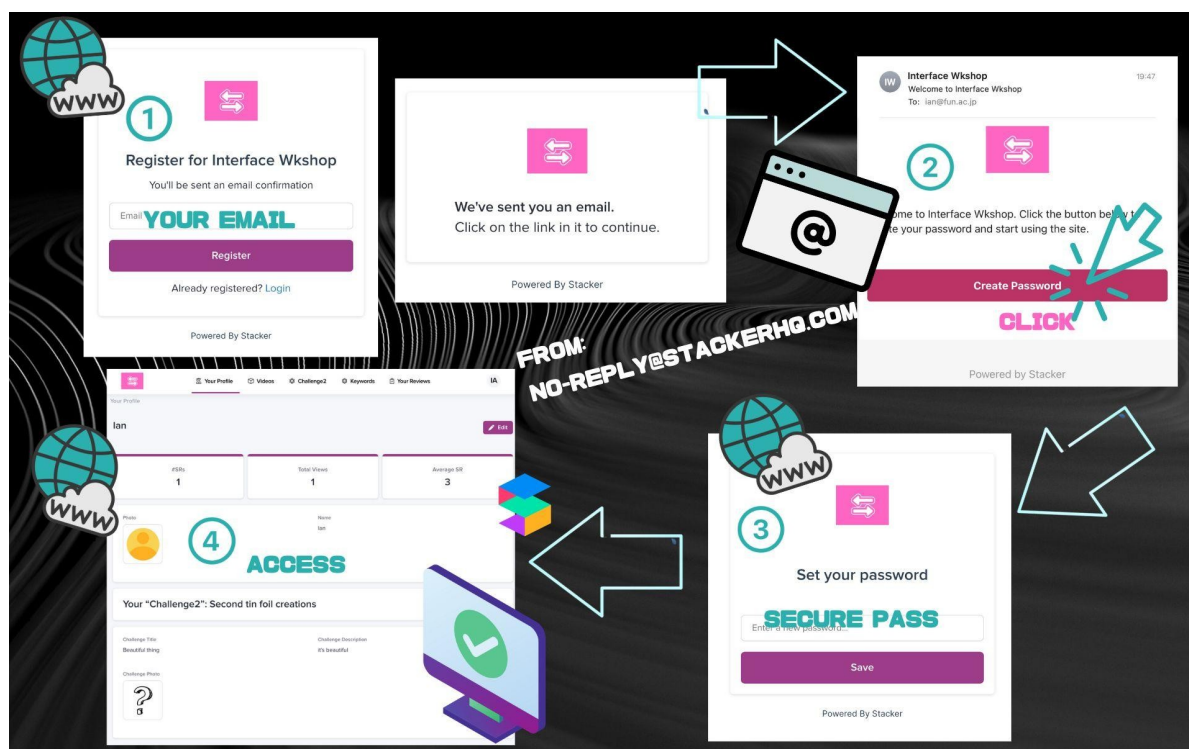
Figure 2: Login process used in IAFOR workshop at ACE2022, Dec 1 2022

The following sections pick out some messages from the ACE workshop activities. In terms of system design, a key motivation for using Airtable was the freedom for the instructor to process and visualise data, especially via the creation of custom dashboards (for concrete examples of dashboards created by Airtable, both in education and in events management, see the "Learning from Events" paper elsewhere in this Proceedings).

Freedom of scripting and data presentation is less common in most dedicated LMS systems, and a low-code approach has the advantage of potentially adapting quickly to changing trends in software design. An industry summary by Brown (2022) quotes TechRepublic as assessing

that "nearly 60% of all custom apps are now built outside the IT department. Of those, 30% are built by employees with either limited or no technical development skills". Brown summarises these developments as helping "organisations reduce backlog, decrease costs, [and] improve agility", further quoting a Gartner prediction that "by 2024, low-code [...] will be responsible for more than 65% of application development activity".

Note that an adaptation of the basic Airtable framework has already been deployed in a *koto-tsukuri* way in the field of Medical IT, as a proof-of-concept for new approaches to online training and learning through video. In a 2½-hour workshop, around 200 participants used the process shown in Figure 3 as part of the international conference "Moving Forward in Unity: Nursing Through the Covid-19 Pandemic" (https://mfiu2021.mfu.ac.th/). The developed system allowed groups to carry out problem-solving steps of diagnosing patient symptom examples, with the next stage of the video training being delivered to the smartphones of all group members. Each groups' selections resulted in different videos being delivered, as they together experienced and reflected on the challenges of medical diagnosis. This general theme of video as a tool for interaction is continued in the next section.

Figure 3: VTraining process used in MFIU conference workshop, Nov 23 2021

Managing Videos

At the very beginning of the pandemic, the first step when creating an Airtable-based LMS to use in university classes was implementing the basic functionality of collecting written student reviews on videos and sharing the reviews within a class. Each student giving of their own thoughts and having their words affect the class environment can be seen as a simple kind of *koto-tsukuri*. The interface allows reviews to be recorded using whatever nickname the user chooses, as shown in the expanded view from a third-year class in Figure 4 (many of the comments are in Japanese, but readers should get the general impression).

Video content had the feel of being a better "fit" for the Zoom delivery environment, and compact videos (usually less than 5 minutes in length) were targeted due to considerations of attention spans and of what Hirsch (2014) has called "thinking like an architect". Specifically, shorter content gives "construction" flexibility in the way that materials can be incorporated into a class, and leads naturally to the use of videos as springboards for interactions such as "classroom applications and activities that provide flexible, differentiated, and hands-on

opportunities for authentic learning" (*id*). A small selection of suitable content was already available online, but a large number of original videos were required because of two factors limiting the pool of resources: the technical nature of the subjects being taught, and the need to make contents understandable in the context of a Japanese university education.
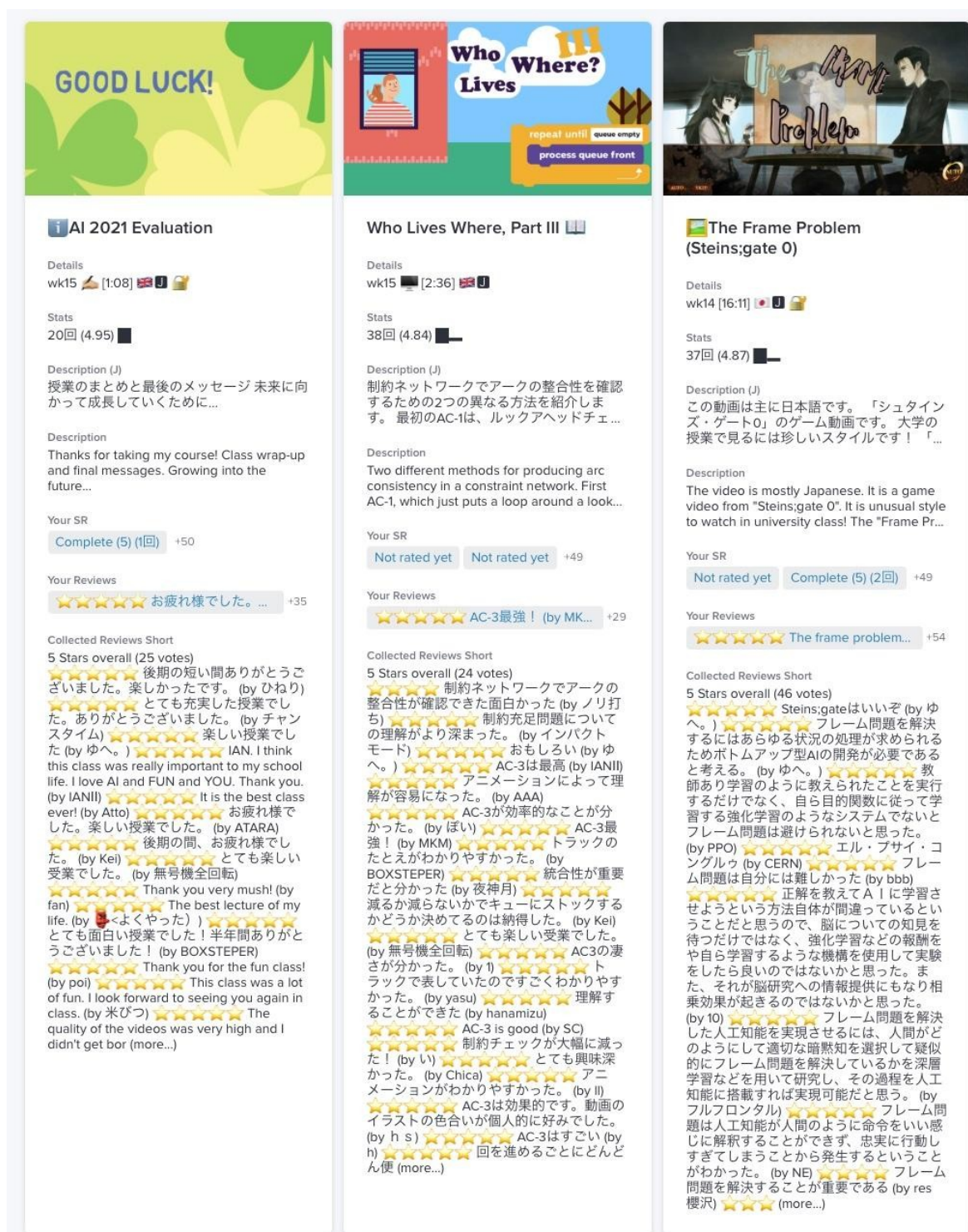
Figure 4: Screenshot of Stacker interface showing student reviews from 3rd year class

The time required to produce video meant that for original content only the "high value" core class contents were selected for conversion to video, and quality and variety in production style was set as a priority, with the aim of engaging students. A secondary benefit of aiming

for a high quality was gaining some understanding of the scale of the longer-term goal of creating content that might be usable by other educators in developing courses on similar topics. As a first step towards this larger goal (a step that can be viewed as increasing the *koto* intersection with the much larger environment outside the class), a subset of the developed videos was shared publicly on YouTube, by creating the channel "a bit of intelligence".[1]

For classes, collecting and sharing reviews outside YouTube itself was useful both because YouTube comments are not anonymous and because sharing opinions on third-party "curated" videos was also a goal (in Figure 4, the right-most video includes an icon of a painting 🖼 to indicate that it is a third-party video: the content was curated for the course by adding bilingual subtitles and description text). YouTube does offer the alternative of using private channels, but analytics available to owners of these channels are limited (making monitoring more difficult), and third-party content cannot be re-uploaded. YouTube policies on delivery of content also tend to change over time, sometimes unpredictably.

To demonstrate the video reviewing functionality at the ACE workshop, all participants communally watched one original video of less than a minute's length. The video chosen was "The Teddy Bear Approach", which originates from the field of computer science but still carries a general lesson about the benefits of interacting with the environment, even if the environment impassively provides no feedback (readers with an interest can find the video on the "a bit of intelligence" channel). One of the reviews recorded through the Stacker interface at the workshop was: "Fantastic teddy bear approach, shall chat more with teddy bears :p"

In actual classes, text from student reviews is used when creating "Q&A" banners for following weeks' class web pages. Students report that they appreciate seeing each others' comments used in this way, for example as shown in the class banner of Figure 5 (the English is a DeepL translation of the original Japanese).
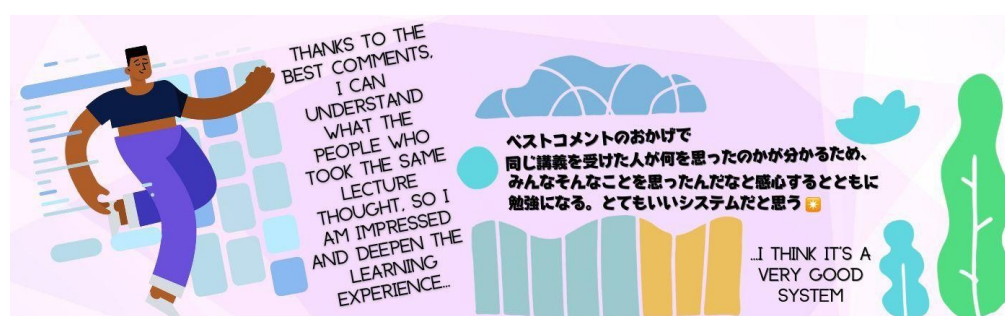
Figure 5: Example "Q&A" banner used to present and comment on feedback graphically

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[1] Since one of the courses being taught was a programming course, it is interesting to consider the views of David Malan, the leader of Harvard's CS50 (Computer Science) course. As reported in (Orbey 2020), Malan regards it as "Wasteful... to have thousands of teachers, in computer science or other fields, all doing the work of devising similar curricula." It's possible that one result of increased video output creation by educators, in part spurred by the pandemic, could be a movement towards Malan's vision where the sharing of resources can free teachers to do their best work: "I don't think we want just one introduction to computer science and one introduction to psychology or any such field… But there's probably a number around dozens—hundreds—that makes more sense?" (id). One can imagine a modified version of Malan's perspective where large numbers of educators prepare tailored curricula, but select resources from a communally shared pool of gradually refined materials.

Managing Activities

With a theme of creating interactions between participants and the environment, the ACE workshop needed a physical activity. Figure 6 shows the results of the participants' efforts to respond to the challenge of representing the experience of the Corona years using just one square of baking foil.
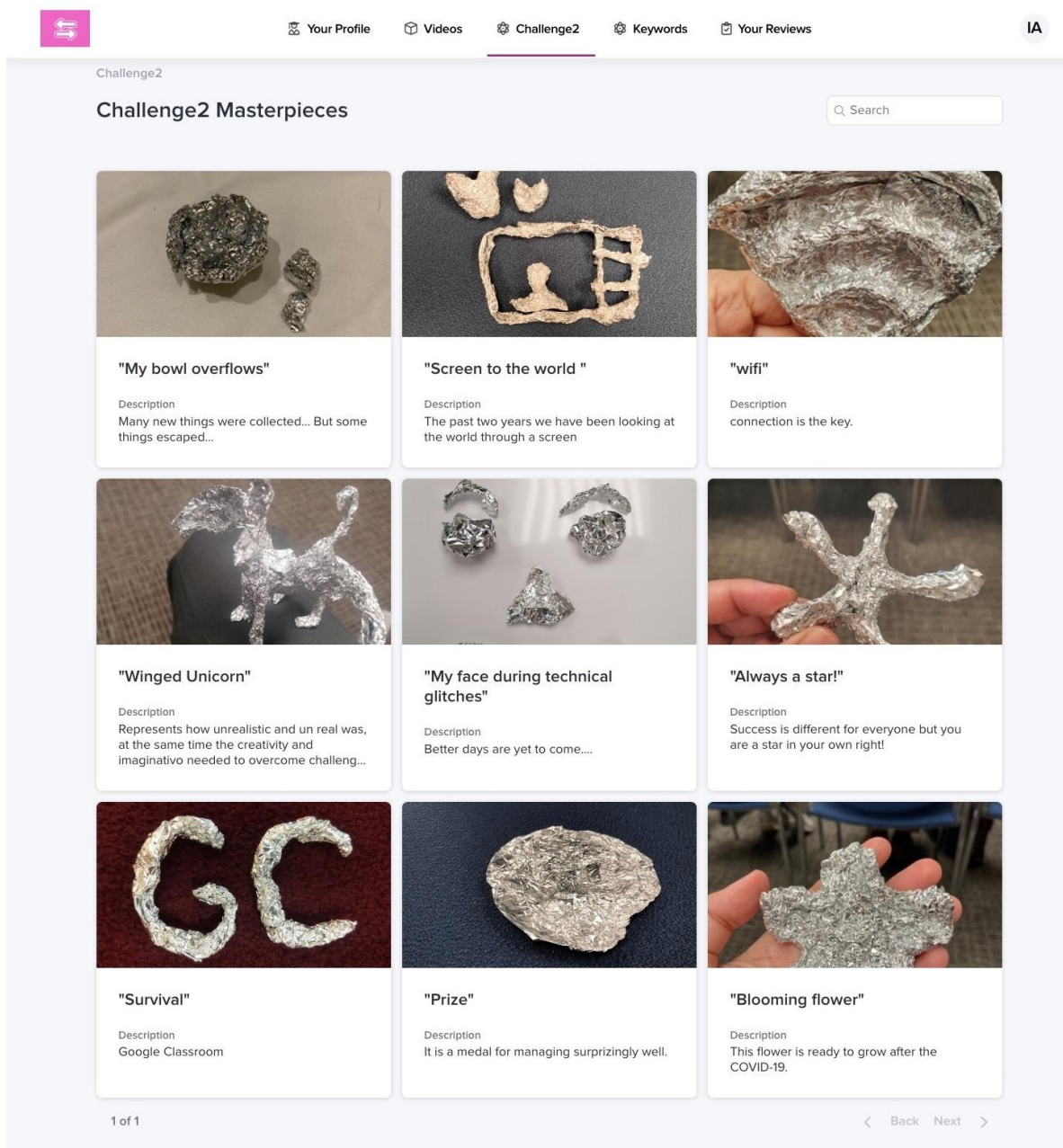
Figure 6: Screenshot of Stacker interface showing baking foil creations by workshop participants

Diverse results were maybe to be expected from an audience of educators, and they allowed a debrief where participants could talk with relative freedom about personal experiences (it's an interesting lesson from workshops that it can be easier for participants to describe some external object rather than to directly describe something personal, even if the message is essentially the same).

The Stacker interface allowed everyone to simultaneously view all the works, in addition to exercising (showcasing?) the participants' snapshot and description writing skills. The gallery approach scales to much larger numbers of participants, and also translates into an online environment, where finished products can be uploaded asynchronously. It can be a challenge to incorporate actual physical activities into online classes, but uploading photos or even video can allow many kinds of experiences to be shared. As an example, the channel "a bit of intelligence" contains a digest compiled from videos that students recorded of their own individual efforts at building towers from paper (the exercise was used to illustrate some everyday and some technical aspects of the effects of "constraints"). Online resources can be used to find inspiration for activities, and one that can be recommended is the site businessballs.com, from which the workshop idea of creating shapes from baking foil was extracted. Although trying foil for the first time, the activity fully delivered as advertised: "baking foil is a wonderful material for model-making… Baking foil is clean, looks great when put on display, and is very easy to clear up. Most people will never have tried using it before, so it's very new and interesting and stimulating" (Businessballs 2022).

The Stacker interface of Figure 6 also shows a "Keywords" menu that was included in the workshop application as a further example of possible interfaces. When used in classes, another main function of the LMS is to provide per-student control over responses to quizzes that are built around class videos. The *koto* perspective of encouraging engagement with an environment is reflected in the use of the gamification metaphor of "Unlocked Content" for quiz answers that are presented as designs, as shown in the example of Figure 7.
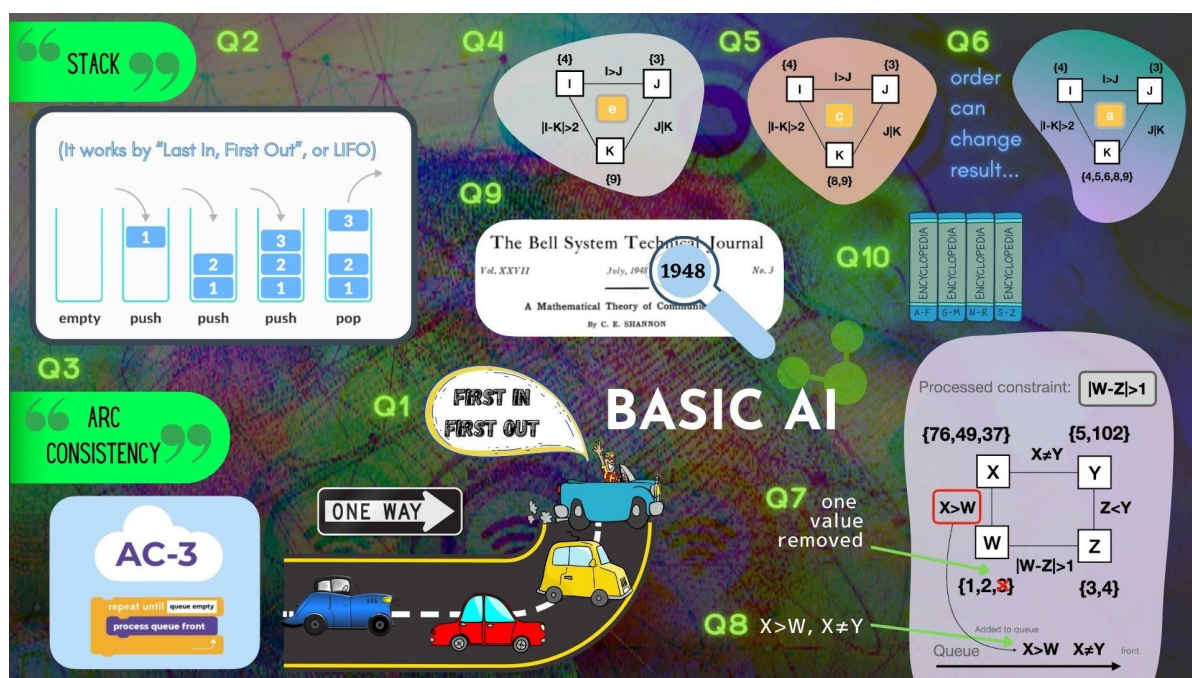
Figure 7: Example "Unlocked Content" from a university-level AI class

Some Evaluation & Reflection

The graph of Figure 8 shows the evaluations from the four university courses sole-taught by the author over a seven-year period, comprising one 2nd year course, two 3rd year courses, and one master's level course (the 2022 editions of the master's class and the 2nd year class are still ongoing at the time of writing). The evaluation instrument was a university-wide tool asking students to anonymously specify levels of satisfaction. The graph shows the

percentage of responding students to select the top level of "extremely satisfied", which the evaluation instrument describes to students as being "particularly excellent (within the top 10% of classes you have taken to date)" (translation from Japanese).
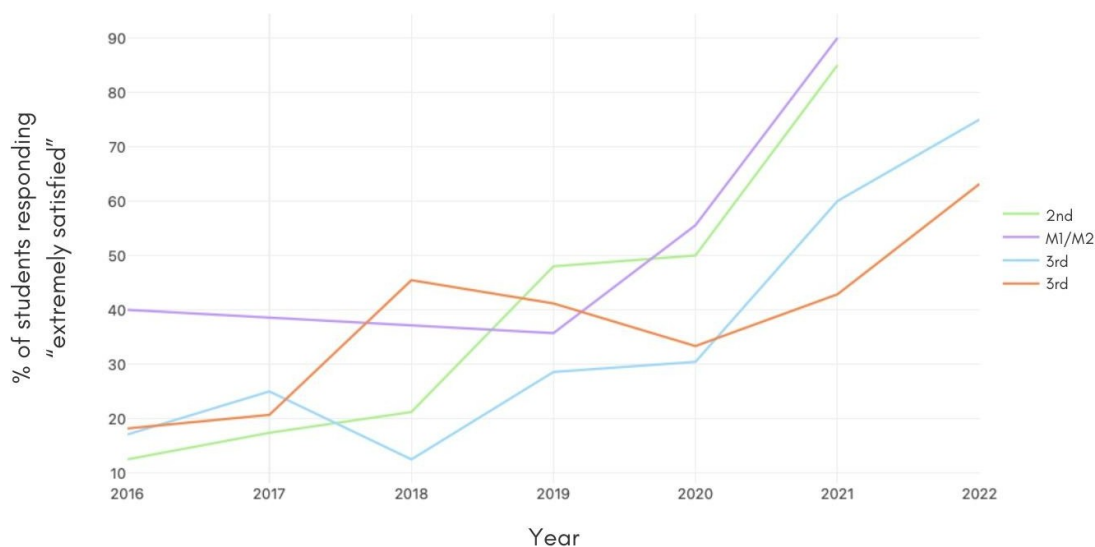
Figure 8: Seven years of evaluations from university-level classes

At scale, the phrasing of the evaluation question should result in an average "extremely satisfied" rating of around 10%, so the results are encouraging both for the generally high figures, and for the increases since 2019. All classes were moved from face-to-face to fully online from 2020, with online delivery using Zoom and the Airtable LMS (with the exceptions of a few face-to-face workshop-style classes that were possible in the master's class towards the end of 2022). Video contents, LMS features and production values of the online screenshare were gradually improved as time allowed over the three years of online teaching.

In addition to the teaching environment, there are many effects that could account for increasing evaluations, including the switch to video contents, the greater exposition clarity and expunging of errors that resulted from the extended preparation time of video creation, the different teaching practices afforded by new materials, and the degree to which the students pick up on the level of enjoyment or stress of the educator leading the class.

Many educators have been encouraged by positive online experiences and student feedback such as those above. Some have used their experiences to suggest that "lecturing doesn't work" when discussing face-to-face teaching at "the chalkface" (Challen 2021). While this conclusion can hold for individuals, institutions may profit from a broader perspective in this period where many are considering how to best learn from the experience gained during the pandemic. The choice of a workshop format as the delivery method for this paper at ACE was itself a nod to the *koto* importance of active face-to-face experience.[2] Since the overall impression of the disruption of Corona is one of increased opportunity for moving forward with new tools, new methodologies, and new perspectives, we may be reminded of the insight offered by Bateson (1979) when contemplating the larger challenge of balancing the

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[2] The absence of other presentations in the form of workshops at the conference seemed to serve as some kind of emphasis.

two processes of rigour and imagination: "The practical problem is of combination. How, recognising the dialectic relation between… poles of contrast, shall we proceed?" The hope for this paper is that it may provide some food for thought for one possible mode of combination, in the model of the *koto* interface.

Conclusion

The pivot to online presented educators with the opportunity to experiment with alternative teaching models. This paper has documented one thread of changes that were implemented in 15-week science classes in a Japanese university, and showed that the classes were highly evaluated by students over three years. Interpreted as an educational philosophy, the concept of *koto-tsukuri* was put forward as a framework for guiding the selection of teaching methods and materials to promote a wide range of interaction. Examples were given of how a low-code LMS allowed this goal to be approached in online classes. Video content was highlighted for its ability to compactly present key messages in an engaging way, and to act as a springboard for discussion, problem-solving and sharing of opinions. Viewed through the high-level perspective of *koto-tsukuri,* the agenda becomes not so much one of which modalities can be best used for delivery, but how educators and students can arrive at the tools, techniques and content that best result in the interactions that lead to their educational goals. It's more of an ecology than an economy, but the question is still: "What can you create?"

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A Confirmatory Factor Analysis of Information Ethics for Primary School Administrators Under the Office of Basic Education Commission, Thailand

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Abstract

The purposes of this study were:1) to investigate components and indicators of Information Ethics for Primary School Administrators under the Office of the Basic Education Commission, Thailand; and 2) to verify congruence between a structural relationship model and the empirical data. The samples were 840 administrators and teachers in primary schools under the Office of the Basic Education Commission, obtained through multistage random sampling. The instrument was a questionnaire of 5 rating scale with 0.888 reliability. The data were analyzed by using basic statistics and confirmatory factor analysis to verify the correlation of the model indicating Information Ethics of Primary School Administrators under the Office of the Basic Education Commission with the empirical data. The data were calculated with a computer statistic package using SPSS program version 28.0 and M PLUS version 7.0. The results of the study revealed that: 1) the Information Ethics of Primary School Administrators under the Office of the Basic Education Commission Thailand consisted of 5 components as follows: (1) Information Privacy with three indicators (2) Information Accuracy with three indicators (3) Information Property with three indicators (4) Access to information with three indicators, and (5) Information Security with four indicators. 2) The model indicating Information Ethics of Primary School Administrators under the Office of the Basic Education Commission Thailand was consistent with the empirical data with $\chi^2 = 47.221$, Df = 33, $\chi^2/$ Df = 1.430 ,P-Value = 0.0518, RMSEA = 0.023, SRMR = 0.016, CFI = 0.999, TLI = 0.996.

Keywords: Information Ethics, Primary School Administrators, Confirmatory Factor Analysis

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Introduction

The outbreak of the coronavirus disease (COVID-19) has occurred and changed to a new normal under new standards that are unfamiliar. As a result, the demand for internet and information usage has increased exponentially. Even educational institutions need to be adjusted by modifying many forms of teaching and learning especially using online teaching as the main channel. When educational institutions have more demand for information use, they could possibly be the target of information threats both in terms of the system and use of users' information. This information threat problem is a key issue of threats in the digital age. It covers both hardware, software and data threats that affect the safety of people's lives and property. All threats are focused on attacking corporate information systems where large amounts of information are stored including personal, financial, etc. to take advantage of that information in the wrong way, such as trading or hacking the financial system. This causes serious damage to the individual. In many cases, threats arise from human errors/failures in downloading pirated programs that disguise threats.

In Thailand, there is a governmental organization, Saraburi Provincial Hospital, which was attacked by ransomware that looks like encrypting or locking files. Whether they were document files, pictures, or videos, users were not be able to open any files. Attackers (Hacker) could get many personal data files that were hospital customers. According to a report by the Thai National Intelligence Agency, there have been attempts to attack the Ministry of Education's information systems with the aim of personal information storage. It was believed to have entered the lock code using ransomware and warned schools to be careful and urgently improve school information systems since the school is a place to collect a lot of personal information such as personal history, address, financial status, relationship with family members, etc. In addition, it can be concluded there were three factors causing the information risks. The first one was uer error. It was found that using the information system in the website wasat risk. The second one was the use of pirated programs by installing pirated programs that covered viruses (Malware) and threats. The third one was data destruction. It was found that educational institutions did not destroy data documents. It was found that they sometimes choose to reuse and rerell various information documents for recycling causing personal information to leak outside the educational institution. These document were easily used by outsiders and criminals. Therefore, ethics in the use of information must be accelerated for administrators, teachers and related people to realize the importance of data storage, use, and destruction of data as well as protecting personal information to be more secure.

According to document and related research, it was found that the concept of information ethics, Ricard O Mason (1986), who proposed the concept of information ethics to prevent such problems at the individual and organizational levels. The purpose was to protect the privacy of information, intellectual property rights to access information, data control and protection, and information security and intellectual freedom. Michael J. Quinn (2017), Dennis Ocholla (2017), O'Brien (2018), and Dan L. Burk. (2008) discussed the concept of executive ethics called, "business standards". It's an ethics set up to be used as a guideline for creating or using data and information of people in society, respect for etiquette in using information, intellectual property rights to access information, and data control and protection. Data security and intellectual freedom as well as organizations must also have control over the dissemination of their data and information.

The researcher is therefore interested in studying the components and indicators of information ethics of primary school administrators under the Office of the Basic Education Commission. The objective was to examine the consistency of the information ethics indicator model of primary school administrators under the Office of the Basic Education Commission with empirical data, which obtained information, factor loading of elements and indicators of information ethics that could be used as a conceptual framework for creating information ethics development models of the management team in managing the school in the future.

Review of Literature and Related Research

From the review of literature and research related to information ethics of school administrators. The researcher analyzed the components of information ethics based on the concepts of Becky Simon. (2017) and (2002), Dan L. Burk. (2008), Dennis Ocholla (2017), Jacob A Young (2020), Kozloski, K., C. (2006), Kuhlthau, Carol Collier. (2009), Katherine O'Keefe, Daragh O Brien (2018), Luciano Floridi. (2013), Mason, R. O. (1986), Michael j. Quinn. (2017),Mojgan A, Kamariah; & Foo Say Fooi. (2006), Namtip Wipawin. (2014), O'Brien (1999). Jame A. O'Brien. (2008) Sucheeva Pichaikul. (2019) Valenzuela, Carlos R. (1992) and W. Michael Hoffman and Dawn-Marie Driscoll (2020) (criteria 70 percent or more), which made it possible to obtain the information ethics components of school administrators. There were 5 elements in total as follows:

1. Information privacy consists of protection of personal data, data collection, and data use and disclosure.
2. Information accuracy of the information consists of correctness verifying, updating information process, and information reliability.
3. Information property includes plagiarism, copyright information, and software licenses.
4. Access to information consists of level of access, User Access Control, and Logging and Monitoring.
5. Information security consists of information technology security policy, information system environment control, assessing information security threats, and maintenance of information technology security systems. The hypothesis model is as follows:
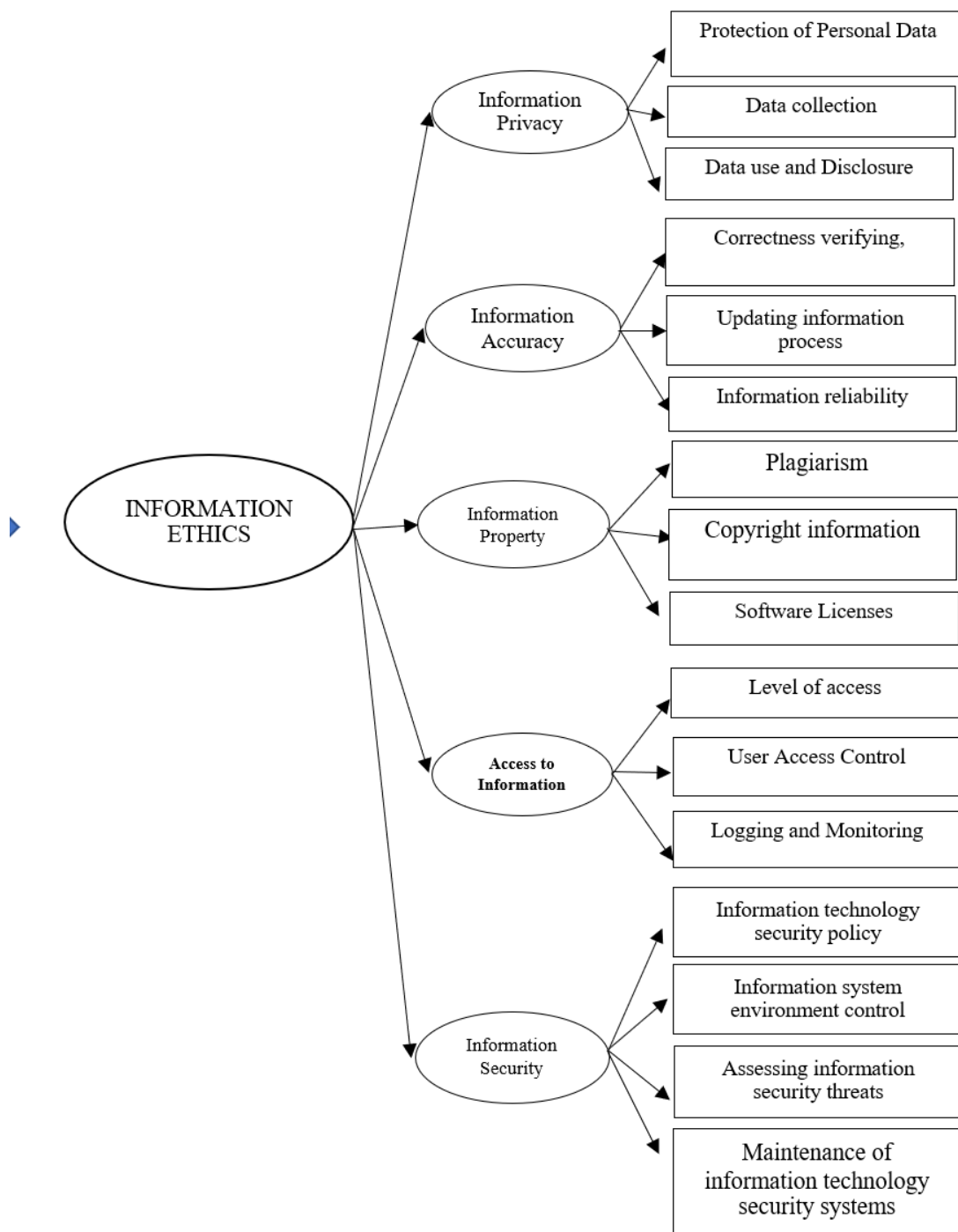
Figure 1: information ethics hypothesis model for Primary School Administrators Under The Office of Basic Education Commission, Thailand

Research methodology

This research was a descriptive research. It was conducted in 2 phases as follows:

The first phase: Was to study the components and indicators of information ethics of primary school administrators under the Office of the Basic Education Commission by analyzing documents (Document Study) and interviewing 7 experts to confirm the components and indicators of information ethics of primary school administrators.

The second phase: Examined the consistency of the information ethics indicator model of primary school administrators under the Office of the Basic Education Commission with the following empirical data:

Population and sample: The population was primary schools under the Office of Primary Educational Service Area. There were 21 parameters in this research by using the ratio of sampling unit with parameter or variances in factor analysis. According to the concept of Hair et al. (2006), the researcher therefore defined the sample group in the research as 20:1, resulting in a sample of 420 schools. The informants consisted of 1 administrator and 1 teacher. The acquisition of 840 subjects by multi-stage sampling. In the first step, stratified random sampling was used by type: 1. Region, 2. Primary educational service area, and 3. The size of school. The second step was to use Sample Random Sampling for each class by drawing lots to obtain a representative sample. The size of the sub-sample was proportional to the school sample as shown in the table.

Table 1: Table of samples came from multi-stage sampling

First Random		Second Random	Third Random				Total (person)
Region	Province	Area	Small	Medium	Large	Extra Large	
North	1. Chiang Mai	1,4	12	12	4	4	64
	2. Chiang Rai	2,3	12	12	4	4	64
	3. Lamphun	1,2	12	12	4	4	64
Central	4. Nakhon Sawan	2,3	12	12	4	4	64
	5. Lopburi	1,2	12	12	4	4	64
	6. Nakhon Pathom	1,2	12	12	4	4	64
Northeast	7. Kalasin	1,2	12	12	4	4	64
	8. Khon Kaen	3,5	12	12	5	5	68
	9. Nakhon Ratchasima	4,6	12	12	5	5	68
	10.Maha Sarakham	1,3	12	12	4	4	64
South	11. Phatthalung	1,2	12	12	4	4	64
	12. Songkhla	2,3	12	12	4	4	64
	13. Nakhon Si Thammarat	3,4	12	12	4	4	64
Total	13	26	156	156	54	54	840

The variables used in the study were: 1. Information privacy 2. Information accuracy 3. Information property 4. Access to information 5. Information security

Tools: Rating Scale Questionnaire with 0.961. Try Out efficiency.

Data collection: Was done by sending questionnaires to the sample group in the school online via google form and requesting a response within 4 weeks. Then the researcher checked the accuracy and sufficiency of the data for statistical analysis.

Data analysis: Descriptive statistics was used with frequency distribution and percentage determination for respondent status analysis. Reference statistics was used to check the consistency of the research model with empirical data by using the criteria of Prakitiya Taksino (2016), which were: 1) chi-square value ($x2$) had no statistical significance or p=value was greater than 0.05, 2) chi-square value per degree of freedom (x^2/df) was less than 2.00, 3) the Comparative Fit Index (CFI) was greater than 0.95, 4) Tucker-Lewis Index: (TLI) was greater than 0.95, 5) Parametric Error Estimation (RMSEA) was less than 0.05, and 6) Root Mean Squared Index (SRMR) was less than or equal to 0.08.

Research results

The results of the development of information ethics indicators of primary school administrators under the Basic Education Commission

From the results of the analysis, the researcher developed information ethics indicators of primary school administrators under the Basic Education Commission. For overall pictures, there were 5 aspects: 1. Information privacy, 2. Information accuracy, 3. Information property, 4. Access to information, and 5. Information security. The researcher used the criteria of Suthithat Konkarn (2004) to consider the mean ($\overline{X}$) equal to or greater than 3.00 and the coefficient of distribution (C.V.) equal to or less than 20% for selection in order to set out in measurement models for confirmatory component analysis. The analysis results are shown in Table 2.

Table 2: Mean ($\overline{X}$), standard deviation (S.D.) and coefficient of distribution (C.V.) of information ethics indicators of primary school administrators.

Symbol	Information ethics indicators of primary school administrators under the Basic Education Commission	Level of Practice			
		$\overline{X}$	S.D.	C.V.	Result
pri	**1.Information Privacy**				
pri1	1.1 Protection of personal data	4.51	0.30	0.09	suitable
pri2	1.2 Data collection	4.51	0.29	0.09	suitable
pri3	1.3 Data use and disclosure	4.51	0.29	0.09	suitable
	Total	**4.51**	**0.29**	**0.09**	**suitable**
Acc	**2. Information accuracy**				
acc1	2.1 Correctness verifying	4.49	0.29	0.08	suitable
acc2	2.2 Updating information process	4.50	0.29	0.08	suitable
acc3	2.3 Information reliability	4.49	0.29	0.08	suitable
	Total	**4.49**	**0.29**	**0.08**	**suitable**
Prob	**3. Information property**				
prob1	3.1 Plagiarism	4.49	0.28	0.08	suitable
prob2	3.2 Copyright information	4.51	0.29	0.08	suitable
prob3	3.3 Software licenses	4.49	0.29	0.09	suitable
	Total	**4.49**	**0.29**	**0.08**	**suitable**
Acs	**4. Access to information**				
acs1	4.1 Level of access	4.19	0.38	0.15	suitable
acs2	4.2 User Access Control	4.20	0.37	0.14	suitable
acs3	4.3 Logging and Monitoring	4.23	0.38	0.14	suitable
	Total	**4.20**	**0.38**	**0.14**	**suitable**

Symbol	Information ethics indicators of primary school administrators under the Basic Education Commission	Level of Practice			
		$\bar{X}$	S.D.	C.V.	Result
Sec	**5. Information security**				
sec1	5.1 Information technology security policy	4.00	0.28	0.08	suitable
sec2	5.2 Information system environment control	4.01	0.30	0.09	suitable
sec3	5.3 Assessing information security threats	4.00	0.29	0.08	suitable
sec4	5.4 Maintenance of information technology security system	4.00	0.29	0.08	suitable
	Total	**4.00**	**0.29**	**0.08**	**suitable**
	Summary	**4.33**	**0.30**	**0.09**	**suitable**
	Total	**4.51**	**0.29**	**0.09**	**suitable**

From Table 2, it was found that the results of the basic statistical analysis on the suitability of the information ethics indicators of primary school administrators under the Basic Education Commission. Overall, it was at a high level ($\bar{X}$= 4.33). It was found that the main components with the highest mean were: 1. Information privacy ($\bar{X}$= 4.51), followed by 2. Information accuracy, and 3. Information property ($\bar{X}$= 4.49). The lowest was 5. Information security ($\bar{X}$= 4.00). The variance of the data was 0.30. The data distribution was between 0.08- 0.14. The information ethics of primary school administrators under the Basic Education Commission met the specified criteria and could be used to analyze the correlation coefficients between the variables of information ethics of elementary school administrators under the Basic Education Commission.

An analysis of the correlation coefficient (r) among the variables of information ethics of primary school administrators under the Basic Education Commission by finding Pearson's Correlation Coefficient. The results of data analysis are in Table 3.

Table 3: Correlation coefficient (r) of information ethics indicators of primary school administrators under the Basic Education Commission

	pri1	pri2	pri3	acc 1	acc 2	acc 3	prob 1	prob 2	prob 3	acs1	acs2	acs3	sec1	sec2	sec3	sec4
pri1	1															
pri2	.650 **	1														
pri3	.670 **	.747 **	1													
acc 1	.674 **	.738 **	.725 **	1												
Acc 2	.647 **	681 **	.681 **	.760 **	1											
acc 3	.697 **	.680 **	.625 **	.740 **	.773 **	1										
Prob1	.456 **	.623 **	.528 **	.496 **	.496 **	.494 **	1									
prob2	.559 **	.665 **	.539 **	.638 **	.641 **	.649 **	.626 **	1								

	pri1	pri2	pri3	acc 1	acc 2	acc 3	prob 1	prob 2	prob 3	acs1	acs2	acs3	sec1	sec2	sec3	sec4
pro b3	.588 **	.647 **	.535 **	.608 **	.647 **	.661 **	.620 **	.699 **	1							
acs 1	.452 **	.426 **	.451 **	.410 **	.375 **	.368 **	.340 **	.379 **	.580 **	1						
acs 2	.385 **	.524 **	.588 **	.540 **	.502 **	.414 **	.355 **	.416 **	.589 **	.582 **	1					
acs 3	.455 **	.471 **	.532 **	.488 **	.474 **	.485 **	.328 **	.445 **	.633 **	.579 **	.831 **	1				
sec1	.524 **	.607 **	.553 **	.614 **	.556 **	.542 **	.527 **	.634 **	.666 **	.531 **	.688 **	.745 **	1			
sec2	.563 **	.670 **	.518 **	.598 **	.507 **	.578 **	.612 **	.619 **	.713 **	.519 **	.473 **	.572 **	.805 **	1		
sec3	.531 **	.539 **	.453 **	.426 **	.426 **	.451 **	.459 **	.486 **	.633 **	.526 **	.516 **	.636 **	.775 **	.820 **	1	
sec4	.503 **	.504 **	.486 **	.469 **	.455 **	.390 **	.435 **	.469 **	.665 **	.506 **	.639 **	.712 **	.793 **	.724 **	.873 **	1

* * Correlation is significant at the 0.01 level (2-tailed).

From Table 3, it was found that there were five aspects of the information ethics components of primary school administrators under the Basic Education Commission. All pairs were related in a positive direction with statistical significance at 0.01. The correlation coefficient was between 0.340 - 0.873 according to the criteria of Nonglak Wiratchai (2005). The first pair with the highest correlation coefficient was assessing information security threats, and maintenance of information technology security system (r = 0.873), followed by User Access Control of people who came into contact with the system (r = 0.805). Contrastingly, the pair with the lowest correlation coefficient was protection of personal data with User Access Control (r = 0.385).

The results of verifying the consistency of the information ethics indicator model of primary school administrators under the Basic Education Commission with empirical data

Was shown in Figure 2 and Table 4.
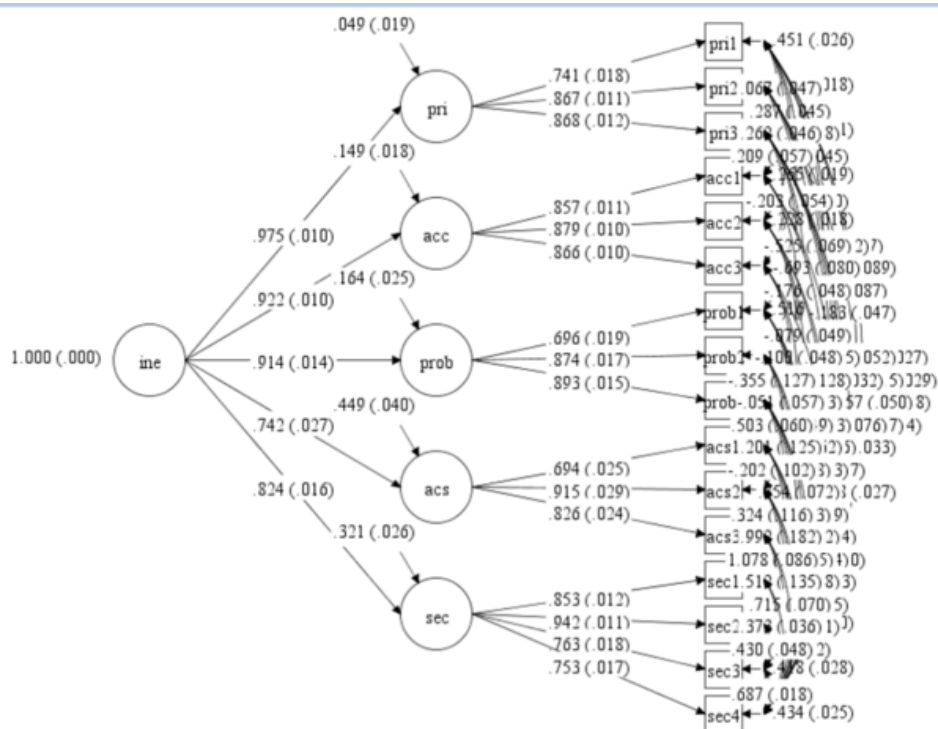
Figure 2: Information ethics indicator model of primary school administrators
under the Basic Education Commission with empirical data (M-Plus7.0)

Table 4: the consistency index of the information ethics indicator model of primary school
administrators under the Basic Education Commission with empirical data.

Tucker-Lewis Index: (TLI)	Criteria	Analysis results	Consideration results
χ^2	P > 0.05	$\chi 2$ = 47.221, Df = 33, P-Value = 0.0518	accepted
χ^2/DF	< 2.00	1.430	accepted
RMSEA	< 0.07	0.023	accepted
SRMR	< 0.08	0.016	accepted
CFI	> 0.95	0.999	accepted
TLI	> 0.95	0.996	accepted

The results of the analysis of information ethics indicator model components of primary school administrators under the Basic Education Commission.

Was shown in Table 5 and Table 6.

Table 5: the results of the analysis of information ethics components of primary
school administrators under the Basic Education Commission.

component	Factor Loading			R-Squared (R^2)
	β	S.E.	t	
1) Information privacy	0.975	0.010	97.783	0.671
2) Information accuracy	0.922	0.010	92.664	0.667
3) Information property	0.914	0.024	41.221	0.962
4) Access to information	0.742	0.027	31.481	0.781
5) Information security	0.824	0.016	54.361	0.507

From Table 5 presents the results of the confirmatory factor analysis on information ethics principles of elementary school administrators under the Basic Education Commission. It was found that the factor loading was in the range of 0.742 – 0.975. The components in the form of standard scores with the highest component weight were as follows. Information privacy (β = 0.975) had a R-Squared (R^2) of 0.671, followed by information accuracy (β = 0.922), which had a R-Squared (R^2) equal to 0.667. Information property (β = 0.914) had a R-Squared (R^2) equal to 0.962. Information security (β = 0.824) had a R-Squared (R^2) equal to 0.781. The components in the form of standard scores with the lowest component weight was access to information (β = 0.742), which had a R-Squared (R^2) of 0.507.

Table 6: Factor Loading, Standard Error (S.E.) and Test Statistical Values (t-value) used to verify model consistency with empirical data.

Subcomponents	Factor loading			R-Squared (R^2)	Coefficient of score components (FS)
	β	S.E.	t		
1. Information privacy					
1.1 Protection of personal data	0.741	0.018	41.166	0.612	0.113
1.2 Data collection	0.867	0.011	79.929	0.768	0.254
1.3 Data use and disclosure	0.868	0.012	75.503	0.695	0.279
2. Information accuracy					
2.1 Correctness verifying	0.857	0.011	78.919	0.764	0.161
2.2 Updating information process	0.879	0.010	88.794	0.765	0.181
2.3 Information reliability	0.866	0.010	87.893	0.768	0.102
3. Information property					
3.1 Plagiarism	0.696	0.019	54.792	0.623	0.292
3.2 Copyright information	0.874	0.017	53.144	0.678	0.175
3.3 Software licenses	0.893	0.015	60.016	0.745	0.087
4. Access to information					
4.1 Level of access	0.694	0.025	28.761	0.601	0.381
4.2 User Access Control	0.915	0.029	33.551	0.822	0.103
4.3 Logging and Monitoring	0.826	0.024	36.438	0.731	0.270
5. Information security					
5.1 Information technology security policy	0.853	0.012	71.451	0.786	0.066
5.2 Information system environment control	0.942	0.011	86.565	0.935	0.590
5.3 assessing information security threats	0.763	0.018	44.388	0.811	0.264
5.4 Maintenance of information technology security systems	0.753	0.017	43.294	0.796	0.448

From Table 6 were as follows:

1) Information privacy. It was found that the weight factor coefficient of every element was statistically significant at the .01 level. The variable with the highest factor loading was data use and disclosure (β = 0.868). It had a R-Squared (R^2) of 0.695, followed by data collection

($\beta = 0.867$), which had a R-Squared (R^2) of 0.768, and protection of personal data ($\beta = 0.741$) had a R-Squared (R^2) of 0.612, respectively.

2) Information accuracy. It was found that the weight factor coefficient of every component was statistically significant at the .01 level. The variable with the highest factor loading was updating information process ($\beta = 0.879$). It had a R-Squared (R^2) of 0.765, followed by information reliability ($\beta = 0.866$), which had a R-Squared (R^2) of 0.768, and correctness verifying ($\beta = 0.857$) had a R-Squared (R^2) of 0.764, respectively.

3) Information property. It was found that the weight factor coefficient of all components was statistically significant at the .01 level. The variable with the highest factor loading was software licenses ($\beta = 0.893$). It had a R-Squared (R^2) of 0.745, followed by copyright information ($\beta = 0.874$), which had a R-Squared (R^2) of 0.678, and plagiarism ($\beta = 0.696$) had a R-Squared (R^2) of 0.623, respectively. ($\beta = 0.857$) had a R-Squared (R^2) of 0.764, respectively.

4) Access to information. It was found that the factor weight coefficient of all components was statistically significant at the .01 level. The variable with the highest factor loading was User Access Control ($\beta = 0.915$). It had a R-Squared (R^2) of 0.822, followed by Logging and Monitoring ($\beta = 0.826$), which had a R-Squared (R^2) of 0.731, and level of access ($\beta = 0.694$) had a R-Squared (R^2) of 0.601, respectively.

5) Information security. It was found that the factor weight coefficient of every component was statistically significant at the .01 level. The variable with the highest factor loading was information system environment control ($\beta = 0.942$). It had a R-Squared (R^2) of 0.935, followed by information technology security policy ($\beta = 0.853$) with a R-Squared (R^2) equal to 0.786, assessing information security threats ($\beta = 0.763$) with a R-Squared (R^2) equal to 0.811, and maintenance of information technology security system ($\beta = 0.753$) had a R-Squared (R^2) of 0.796, respectively.

It can be concluded that the information ethics components of primary school administrators under the Basic Education Commission consisted of 5 main components. 1) Information privacy consisted of 3 indicators and 19 indicating behaviors. 2) Information accuracy consisted of 3 indicators 3 indicating behaviors. 3) Information property consisted of 3 indicators and 7 indicating behaviors, 4) Access to information consisted of 3 indicators and 5 indicator behaviors. 5) Information security consisted of 4 indicators and 9 indicating. To sum up, information ethics of elementary school administrators under the Basic Education Commission consisted of 5 main components, 16 sub-components, and 43 indicators.

The results of verifying consistency of the model were $x^2 = 47.221$, Df = 33, $x^2/$ Df = 1.430, P-value. = 0.0518, RMSEA = 0.023, SRMR = 0.016, CFI = 0.999, TLI = 0.996. This passed the test criteria showing that the information ethics model of primary school administrators under the Basic Education Commission was consistent with empirical data.

Conclusion

According to the results of the analysis of the information ethics indicator model of primary school administrators under the Office of the Basic Education Commission, it was found that the model created by the researcher was consistent with the empirical data showing that the main components of information ethics of primary school administrators under the Office of

the Basic Education Commission consisted of 1. Information privacy, 2. Information accuracy, 3. Information property, 4. Access to information, and 5. Information security. Importantly, they were crucial elements. This was because the researcher conducted a study of components and indicators from the concepts of a variety of scholars. There was an in-depth literature review including studying related research that was acceptable in the academic community, interviews with experts to confirm the composition, and indicators derived from synthesis.

1) Information privacy. It was found that the variable with the highest factor loading was data use and disclosure. It corresponded with Richard O Mason (1986) who opined that privacy was paramount to giving individuals the freedom to use information systems as they wish. There was no limit as to what is not illegal. Organizations must provide freedom to users of information systems. In addition, data subjects had the right to have their personal data not to be disclosed unnecessarily and allowed individuals to become private in the information world.

2) Information accuracy. It was found that the indicators with the highest factor loading was updating information process. It was consistent with Dennis Ocholla (2017) who commented that updating information process would be fast and up to date (Update). Good information needed to be updated to always be up-to-date. Data retention needed to be kept up to date with user needs, up-to-date and current events. The information would be immediately available, or it was the most effective when information users could use the information they need quickly and accurately.

3) Information property. It was found that the indicators with the highest factor loading was software licenses. It corresponded with Luciano Floridi (2013) who commented that the use of software created by others required permission from the creator. A license was a contract between the creator and the user of the software. In addition, the license gave the user the right to use the software without being considered an infringement of copyright. As a result, the license acts like a promise that the creator would not sue users for the use of the software, which was the exclusive right of the creator. It did not infringe copyright, which was important in the use of various software.

4) Access to information. It was found that the indicators with the highest factor loading was authentication (User Access Control) which was consistent with Michael J. Quinn (2017) who opined that using authentication would prove the identity of that person who accessed the internet network as well as verifying the rights of users of your internet network for how long and how fast they could upload or download. The system would cut the user out of the service as soon as the time expires. It could also set the time and speed as appropriate. After that, it would record the usage of internet network system. The main purpose of this process was to report the use of the internet network and confirm the record of the use of the Internet network in detail. It was able to produce summary reports and various statistics on demand.

5) Information security. It was found that the indicators with the highest factor loading was information system environment control is consistent with Namthip Wiphawin (2014) who commented that information system environment control was a policy and method for controlling information systems. It provided safety protection against damage or reduce system damage in order to ensure that the overall information system of the organization was stable and well-managed and was a part that would contribute to integrity.

According to the results of the analysis of the information ethics indicator model of primary school administrators under the Basic Education Commission, it was found that the model created by the researcher was consistent with the empirical data since the researcher had conducted a study of components and indicators from the concepts of a variety of scholars. There was an in-depth literature review including studying related research that was acceptable in the academic community and interviewing with experts to confirm the composition and indicators derived from synthesis. This enabled the researcher to create quality tools that could be measured to meet the objectives of the research. The samples were randomly drawn from all regions. Therefore, it was reliable and representative of the population and corresponds to primary education institutions under the Basic Education Commission. Therefore, the model created by the researcher was consistent with the empirical data and suitable for the context in which the researcher was interested in studying. This was in line with the idea of Steven (2009) stating that elemental analysis confirmation was a data analysis with a clear conceptual framework. There was strong theory or strong empirical evidence behind it. The number of elements was predetermined. The relationship between the constituents and the observed variables was predetermined. Analyzes and observed variables were only associated with some factors.

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A Cultural-Historical Approach to Children With Specific Language Impairment in China

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Abstract

Specific Language Impairment (SLI) is a developmental disorder in children with lower language capacity than average children in the same age group without vivid physical or mental illness. Children with SLI in China have lower academic achievements than their peers; thus, they could be considered lazy or stupid. In the past two years of our first phase of the study, we evaluated more than 40 primary students aged 7 to 9 from 3 primary schools in northern Jiangsu Province in China, with 35 children scoring below 1.5 standard deviations. This study created a social atmosphere by empowering teachers' instruction management skills with better awareness of SLI children. This study also designed a procedure based on Computational Thinking (CT) as a negotiation theme for adult-children interaction for CT logic generalized into sequential and conditional logic. With assistance from an inclusive education classroom with support from teachers and classmates, students explore more social interactions with a better comprehension of correct orders and expressions in a social environment. At the same time, this study used CT activities for internal language development supported by signs and symbols acquired from CT and actualized in the inclusive education classroom. We have seen a gradual improvement in their academic performance and social interactions at school.

Keywords: Specific Language Impairment (SLI), Computational Thinking (CT), Academic Performance

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Introduction

It is a long-time mystery that we have seen children who perform extremely undesirable in terms of their academic performance across all subjects in their elementary school. However, those children are often treated as "stupid" or "lack sufficient study." In addition, they are sometimes conveniently labeled as "lazy." This study aimed to investigate a proper way of diagnosing children with this special type of language impairment and to explore a possible working supportive activity for their further language development and academic success.

Specific Language Impairment (SLI) is a developmental disorder in children with lower language capacity than average children in the same age group without vivid physical or mental illness. Characteristics of children with SLI are generally described by Dorothy V.M. Bishop (2006) and Leonard (2014) in terms of the criteria of SLI:

1. The children's language expression and compression on standardized tests are considerably less effective
2. Nonverbal IQ and nonlinguistic traits are within the normal range
3. Hearing loss, physical abnormalities of the speech apparatus or environmental deprivation cannot be accounted for as causes of language difficulties
4. Brain damage is not the cause of language difficulties

Children with SLI may experience the following, as depicted by Rice (2020) and Dorothy V.M. Bishop (2006) suggested that:

1. have no hearing loss or other developmental delays
2. affecting 7-10% of children
3. usually persistent into adulthood
4. Not likely to be identified (clinically) for services to help with their language impairment, so:
5. A high risk for reading impairments
6. Lower-than-expected academic achievement
7. Difficulties in establishing peer relationships
8. A heightened risk for peer victimization as a student (bully, marginalized)
9. Increased risk of being identified as having an Attention Deficit Disorder (ADHD), Auditory Processing Disorder (APD), and Autism

In addition, language disorders or impairments in children are under-recognized compared to other neurodevelopmental conditions such as attention deficit hyperactivity disorder (ADHD), autism spectrum disorder, and developmental dyslexia. (D. V. (Bishop & Leonard, 2014, p. 2) In other words, SLI is more exclusive compared with Developmental Language Disorder, or DLD. DLD diagnoses include children with lower IQs and co-occurring conditions (e.g., ADHD, DCD, dyslexia), whereas DLD diagnoses include children with lower IQs and co-occurring conditions (Dorothy V. M. Bishop, 2017).

Methodology

The "Language Impairment Scale for School-Aged Children" was used in this study to diagnose children's language performance. It is published by National Taiwan Normal University, with a "norm" for school-aged students (age 6-12) in the Taiwan area that appropriates the Chinese language used in Taiwan's local context. This is problematic for participants of our study on the Mainland as the local word choice and language usage differed. The local contextualized evaluation scale was prepared from the original "Language

Impairment Scale for School-Aged Children" but adjusted and revised with adopted Chinese used in northern Jiangsu Province. This scale includes the question book and picture book. The procedure is still Mandarin Chinese based, but not local Chinese dialects in the northern Jiangsu Province. Forty participants of our first phase are reported (grade 3, 7-9, 5 in age 7, 31 in age 8, 4 in age 9). This study will also compare and discuss the average of 1.5 standard deviations obtained from our data. In addition, the age group of this study is based on the child's actual age on the day of the test (the date of the test minus the child's birthday).

There are four tests on this scale, sub-tests:
1. Sound and fluency,
2. Language comprehension:
3. (1) 32 questions, 40 points, 40% of the total score
4. (2) Including semantic comprehension, vocabulary, grammar skills
5. Conformation, tone,
6. Oral expression
7. (1) 23 questions, 57 points, 59% of the total score
8. (2) Including vocabulary, grammar, pragmatics, shadowing, sentence formation, storytelling skills

Table 1. *Sales of Take-Home Ice Cream in New Zealand*

	age group	n	Mean	SD	M-1.5SD
Language Comprehension	7	5	33.60	1.52	31.32
	8	31	32.90	5.18	25.14
	9	4	33.00	2.71	28.94
	Total	40	33.00	4.63	26.06
Oral Expression	7	5	39.20	8.61	26.28
	8	31	38.42	7.94	26.51
	9	4	38.25	2.22	34.92
	Total	40	38.50	7.52	27.22
Language Development (Sum)	7	5	72.80	9.91	57.94
	8	31	71.32	11.53	54.03
	9	4	71.25	3.59	65.86
	Total	40	71.50	10.66	55.52

According to Table 1, the data of the average and standard deviation of each subtest and the total score show that the eight-year-old group has a larger standard deviation in language comprehension, and the seven-year-old and eight-year-old groups have a larger standard deviation in oral expression, that is, the scores are more dispersed. The standard deviation of the nine-year-old group is smaller in individual subtests.

Table 2. *Comparison of the Mean and Standard Deviation of Each Sub-Test and the Total Score of Participants and National Taiwan Normal University*

	age group	n	Mean (N.Jiangsu)	Mean （NTNU）	SD (N.Jiangsu)	SD （NTNU）	M-1.5SD (N.Jiangsu)	M-1.5SD （NTNU）
Language Comprehension	7	5	33.60	30.69	1.52	4.56	31.32	23.84
	8	31	32.90	32.97	5.18	3.76	25.14	27.33
	9	4	33.00	33.54	2.71	4.10	28.94	27.39
	Total	40	33.00	33.27	4.63	4.80	26.06	26.08
Oral Expression	7	5	39.20	38.13	8.61	7.44	26.28	26.97
	8	31	38.42	40.38	7.94	6.51	26.51	30.61
	9	4	38.25	42.93	2.22	7.14	34.92	32.22
	Total	40	38.50	42.25	7.52	8.12	27.22	30.07
Language Development (Sum)	7	5	72.80	68.82	9.91	10.71	57.94	52.76
	8	31	71.32	73.35	11.53	9.06	54.03	59.77
	9	4	71.25	76.47	3.59	9.88	65.86	61.65
	Total	40	71.50	75.52	10.66	11.86	55.52	57.72

Table 2 compares the mean and standard deviation of the measured data of participants and the normative test and total scores of the National Taiwan Normal University. In terms of average, in Bishuiwan subtest II language comprehension, there is a large gap between the seven-year-old age group and the norm of National Taiwan Normal University, about 2.91. In addition, in subtest 4, oral expression, there is a big difference between the nine-year-old age group and the norm of Taiwan Normal University, reaching 4.68. The differences between the sub-items of the other groups and the norm of Taiwan Normal University are about 1. It may also be related to the small sample size (n=5 for seven years; n=4 for nine years). The standard deviations are convenient but highly variable, indicating that scores within groups are more dispersed.

Table 3. *Cut-Off Point Statistics*

	age group	n	M-1.5SD （NTNU）	cut-off	M-1.5SD (N. Jiangsu)	cut-off
Language Comprehension	7	5	23.84	0	31.32	0
	8	31	27.33	6	25.14	2
	9	4	27.39	0	28.94	0
Oral Expression	7	5	26.97	0	26.28	0
	8	31	30.61	4	26.51	2
	9	4	32.22	0	34.92	0
Language Development (Sum)	7	5	52.76	0	57.94	0
	8	31	59.77	5	54.03	3
	9	4	61.65	0	65.86	0

According to Bernstein & Tiegerman (2002), if a standardized test tool is used to screen children with language impairment, the index is generally two standard deviations below the mean, but if it is used for screening purposes, early parents and For school interventions for

further language and communication skills training, the cut-off point is 1.5 standard deviations below the mean. This study will use the normal model constructed by Lin Baogui (2016) of Taiwan Normal University as a reference and compare the results based on the cumulative mean and standard deviation as the cut-off point. As in Table 3.

Table 4. *Participating Children Scores Below "Within Group" Cut-Off Points*

Participant	Sex	age group	Language Comprehension	Oral Expression	Language Development (Sum)
XXX229	男	8	26	24	50
XXX218	男	8	19	21	40
XXX225	男	8	21	34	55
XXX224	女	8	26	28	54

According to Table 4, if the calculated data based on participants' test data is lower than the mean by 1.5 standard deviations, the abnormal children are all in the eight-year-old age group. In each sub-test performance, language comprehension has two, lower than 25.14. The student numbers are XXX218 and XXX225. In the oral expression subtest, XXX229 and XXX218 were below the cut-off point, lower than 26.51. The total score has three places: XXX229, XXX218, and XXX224. Although XXX225 language comprehension is lower than the cut-off point, lower than 54.03, the total score is higher than the cut-off point. Although the subtests of XXX224 are all higher than the cut-off point, the total score is lower than the cut-off point. So with three digits, the ratio is 7.50%.

Table 5. *Participating Children Scores Below "NTNU" Cut-Off Points*

Participant	Sex	age group	Language Comprehension	Oral Expression	Language Development (Sum)
XXX229	M	8	26	24	50
XXX240	F	8	26	38	64
XXX220	M	8	36	28	64
XXX218	M	8	19	21	40
XXX225	M	8	21	34	55
XXX224	F	8	26	28	54
XXX219	M	8	26	33	59

According to Table 5, the abnormal children are all in the eight-year-old age group compared with the norms of Taiwan Normal University. Among them, six scores were lower than 27.33 for language comprehension, four scores were for oral expression, and five scores were lower than the cut-off point of 30.61. XXX229, XXX218, and XXX224 are lower than the cut-off

point, and the calculation of participants' within-group measured data is the same, but XXX219 and XXX225 are also abnormal after using the norm comparison of Taiwan Normal University. Five students have a total score lower than the cut-off point of 59.77 of Taiwan Normal University, accounting for 12.50%.

Conclusion

According to statistics, the prevalence rate of language barriers among school-age children in Taiwan was 3.3% in the 2008 school year (Lin Baogui, 2016, p.2). According to The University of Kansas, the prevalence of children with specific language impairment is 7-10% (Rice, n/d, p.2). The prediction of the prevalence rate (morbidity rate) of SLI in the current academic circle is generally based on the Tomblin et al. (1997) study of 7.4%, 8% for males, and 6% for females. The prevalence rate of a class in the third grade of participating children in this study is 7.5-12.5%, which is higher than Taiwan and international references. However, it may also be due to the small number of test samples.

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Applying IRT Model in Validating a Dichotomously Scored Test Item

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Abstract

This study conducted an item analysis to validate a dichotomously scored test using the Rasch measurement model, an Item Response Theory approach for test validation. It aimed to improve the quality of the test items in a departmentalized mathematics examination that had undergone content validity through subject experts. The response data gathered from randomly selected college students who had undergone the examination were fitted to the model. Rasch analysis revealed that the test appeared to be relatively difficult, indicating that the it needs to be revised further or that a better teaching strategy is needed to facilitate learning. It was also evident from the results that several misfit items appeared, and evidence of multidimensionality existed, which suggested that these items should be further modified, discarded or amended. However, both the item and person reliabilities were high. These findings suggest that an objective measurement for test validation, such as the Rasch measurement model, could help achieve greater precision in diagnosing test items and, consequently, construct a better measure for the assessment of students' abilities.

Keywords: Rasch Model, Item Response Theory, Item Analysis, Departmentalized Examination, Unidimensionality

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Introduction

The goal of using tests in the teaching and learning process is accomplished only if the test is of good quality. Thus, developing valid and reliable tests is critical for evaluating student performance. The quality of any test was determined by analyzing the responses of students to any examination (Elee, L. I.; Onah, F. E. & Abanobi, C. C.,2018).

Classical Test Theory (CTT) and Item Response Theory (IRT) are two generally acceptable frameworks for evaluating the quality of tests in educational and psychological measurements (IRT). For approximately 100 years, classical test theory (CTT) has been extensively serving the testing field. Although CTT can provide important evidence for measuring instrument accuracy, several new psychometric tools may supplement or even replace this approach in collecting more accurate evidence to support inferences about the meaning and interpretation of scores. (Muñiz, 2017; by Zanon, et al., 2016).

The implementation of item response theory (IRT) in psychological and educational assessments has caused major and positive changes in psychological test development (Hambleton & Jodoin, 2003; Zanon et al., 2016). It has become a popular methodological framework for modeling response data from assessments in education and health; however, its use is not widespread among psychologists. (Zanon, et al., 2016).

IRT is a statistical theory composed of a variety of mathematical models that have the following characteristics: a) to predict person scores based on abilities or latent traits, and b) to establish a relationship between a person's item performance and the set of traits underlying item performance through a function called the "item characteristic curve" (Hambleton et al. 1991, Zanon, et al., 2016). The development of the Item Response Theory (IRT) addressed some weaknesses of CTT, namely: (1) the estimation of the test taker's ability does not depend on the characteristics of the tests used; (2) the item parameter estimation does not depend on the ability of the test taker; and (3) the measurement error can be searched for each individual (Susongko, 2016).

Item Response Theory models attempt to describe respondents' behavior based on their responses to each item. The logistic function is used to estimate the model in general, with three different formulations: 1PL (One Parameter Logistic model), 2PL (Two Parameter Logistic model), and 3PL (Three Parameter Logistic model). The 1PL model, also known as the Rasch Model after the Danish mathematician Georg Rasch, was used as a tool for item analysis in this study.

Rasch analysis is a psychometric technique developed to improve the precision with which researchers construct instruments, monitor instrument quality, and compute respondents' performance (Boone, 2016). The Rasch measurement model predicts how each person (the test-taker) should respond to each question based on the response data from the test's questions (referred to as items in this paper). In this analysis, both the test questions and the test takers are incorporated into a predictive mathematical model. That is, the difficulty level of the items and the ability level of the individuals are placed on a common scale so that the items and individuals can be easily compared (Karlin & Karlin, 2018).

Previous research has shown that analysis using the Rasch model is considered an appropriate and effective measurement technique for representing both students' ability to understand the material and the quality of the questions created (Runnels, 2012; Claesgens, et al., 2013;

Johnson, 2013; Boone, 2016; Talib, et al., 2018). One of the most fundamental ideas for understanding why Rasch theory is such an important tool for researchers is the concept of linearity (Boone, 2016). Based on their findings on the unexpected number of recommended modifications and deletions on the tests examined, Karlin and Karlin (2018) confirmed that the Rasch measurement model can be of tremendous value by offering greater precision in student assessment as well as greater assistance in test validation.

Rasch analysis is already being used by researchers in life sciences education to validate tests (Boone, 2016). Moreover, numerous global and local statistical tests have been proposed over the years to assess data conformity to the Rasch model principles (Baghaei, et al., 2017). However, most teachers are still unfamiliar with the approach's applicability to test improvement. As a result, the researcher finds it advantageous to employ this technique to explore its pertinence and improve measures in the assessment of their students.

Thus, the researcher attempted to do Rasch analysis for this purpose because this method maximizes the homogeneity of the trait and allows greater reduction of redundancy while sacrificing no measurement information by decreasing items and/or scoring levels to yield a more valid and simple measure (Bond & Fox, 2012). According to Bond and Fox (2001), the trait levels (the probability of a correct response or the probability of endorsing any option on each item) are modeled as a mathematical function of the difference between the person and the item parameters (Prieto-Adanes & Dias-Velasco, 2003; Zamora, et al., 2018).

The departmentalized examination in mathematics was used as an instrument in this study. This test was developed by mathematics and education experts and tested for content validity. It was administered to students who took Mathematics in the Modern World (MMW), which is one of the general education (GE) subjects mandated by the Commission on Higher Education (CHED Memorandum Order No. 20. S 2013) for college students who have completed the K to 12 programs. Because the test was multiple-choice, Rasch analysis on a dichotomously scored test was used. Its specific goals were to determine the item difficulty of each test item used in the test, diagnose the fit of the test items in the Rasch Model, assess the items' difficulty level against the students' level of ability, determine the item and person reliability, and evaluate the test's unidimensionality.

Participants

This study utilized the individual test results of 300 randomly chosen college students who took a Mathematics Achievement Test as a measure of their academic performance in Mathematics in the Modern World (MMW), a general education (GE) subject required by the Commission on Higher Education (CHED Memorandum Order No. 20. S 2013). The sample size was adequate to meet the requirements of the Rasch analysis (Linacre, 1994; Bond & Fox, 2012; Souza, 2017).

Procedure

After the Achievement Test was administered to all students, permission was requested from the head of the institution to secure copies of the test results. The student's performance on each item was summarized, fitted to the Rasch model, and examined. A number right scoring method was applied in this study because the test is a multiple-choice type. That is, correct answers were scored with a positive value (1), and incorrect answers and absent or omitted answers with a value of zero (0). Hence the test was dichotomously scored.

In Rasch analysis, the probability of correctly answering an item can be expressed mathematically as the general statement (Bond & Fox, 2012):

$$P_{ni}(x = 1) = f(B_n - D_i) \tag{1}$$

Where P_n is the probability, x is any given score, and 1 is a correct response. This equation states that the probability (P_n) of a person n getting a score (x) of 1 on a given item (i) is a function (f) of the difference between a person's ability (B_n) and an item's difficulty (D_i). Given B_n and D_i, we can express then mathematically the function (f) expressing the probability of a successful response consisting of a natural logarithmic transformation of the person (B_n) and item (D_i) estimates as follows (Bond & Fox, 2012; Chan, et al., 2014; Sumintono, 2018; Winarti, et al., 2019):

$$P_{ni}\left(x_{ni} = 1/B_n, D_i\right) = \frac{e^{(B_n - D_i)}}{1 + e^{(B_n - D_i)}} \tag{2}$$

Where is the probability of person n on item i scoring a correct ($x = 1$) response rather than an incorrect ($x = 0$) one, given person ability (B_n) and item difficulty (D_i). The given equation is the technical aspect of the Rasch model for dichotomously scored instruments. In this study, the Winsteps software was utilized, to facilitate the computation of the items' difficulty level, its fit to the Rasch model, the relationship between the items' level of difficulty and students' level of ability, and unidimensionality.

Data Collection

To gather quantitative data on student performance, a Mathematics Achievement Test constructed by a committee of faculty members specializing in Mathematics and Education was utilized in this study. This 50-item multiple-choice test covers the following topics: a) mathematics in our world (11 items), b) mathematical language and symbols (12 items), c) problem-solving and reasoning (5 items), and d) data management (22 items). This test was used to measure students' level of knowledge in Mathematics in the Modern World (MMW). MMW is a General Education (GE) subject taught to college students who have completed the added two years of high school under the K to 12 (Kindergarten to Grade 12) program (CHED Memorandum Order No. 20. S 2013). The instrument underwent content validity testing before test administration and item analysis. The test was subjected to the following process: (1) development of a Table of Specifications (TOS), (2) generation of an item pool, (3) review of the initial item pool by experts, (4) test administration, and (6) item analysis. The examinee was given one point for every correct choice of the letter that corresponded to the correct answer; hence, a total of 50 points were expected from each examinee.

Data Analysis

This study conducted an item analysis by fitting the individual raw scores to the Rasch model and the item statistics computed were analyzed.

The test items' level of difficulty estimates was expressed in logits, in which a logit value of 0 is arbitrarily set as the average or mean of item difficulty estimates (Bond and Fox, 2012). For many analyses, item difficulties range from −3 logits to +3 logits (Boone, 2016).

To diagnose the fit of the response data to the model, the infit and outfit statistics of each test item were examined. The fit statistics indicate where the test developer should decide whether to delete, restore, or reword an item. The value of the item's outfit and infit mean square and t statistics will be interpreted using the following range of the chi-square fit statistics (Wright & Linacre, 2002; Schumacker, 2004; Bond & Fox, 2012; Ee, et al., 2018; Kantahan, et al., 2020):

Mean Squares	tz	Response Pattern	Variation	Interpretation	Misfit Type
> 1.3	> 2.0	Too haphazard	Too much	Unpredictable	Underfit
< 0.75	< -2.0	Too determined	Too little	Guttman	Overfit

Table 1: Fit Statistics and Their General Interpretation

Moreover, an item characteristic curve (ICC) of the items was also presented to visualize the actual performances of the students on the items that overfit, underfit, and have a good fit to the model.

To assess the relations between the test item's level of difficulty and the student's level of ability, a plot of items according to their order of difficulty was examined through the item-person Wright map and its estimates computed.

The item and person reliability and separation indices were estimated from the simulation performed in the Rasch analysis. An item or person separation index of 1.5 (Ee, et al., 2018; Kantahan, 2018) and a reliability value higher than 0.70 was considered acceptable (Taber, 2018).

Unidimensionality was examined through Principal Component Analysis (PCA) of the residuals (Souza et al., 2017; Ee et al., 2018). PCA is one of the diagnoses by the Rasch model to ensure that all items share the same dimension, which is capable of sensing the ability of the instrument to measure the uniformity of single dimensions with acceptable noise levels (Linacre, 2012; Mokshein et al., 2019). For unidimensional measures, it is expected that the observed variance explained by the measures roughly matches the expected variance in the model. In addition, PCA analyses the components in the correlation matrix of the residuals (called contrasts). The "first contrast" is the component that explains the largest possible amount of variance in the residuals. The decision to consider a measure unidimensional or multidimensional is usually made by the researcher according to the purpose of the test. However, unexplained variances in the first contrast that are greater than 2.0 eigenvalue may indicate the presence of a second dimension (Souza et al., 2017; Ee et al., 2018).

Results and Discussion

This section summarizes the findings from a test assessment using the Rasch measurement model, including test item difficulty, test item fit to the model, test item difficulty and student ability relation, test item and person reliability, and unidimensionality.

Item Difficulty of the Individual Test Item

The item statistics from a Rasch analysis of a dichotomous test used in the study are shown in Table 2. It displays an ordered list of all the items (first column) based on their item difficulty measure (third column) and the associated logit error estimate (fourth column). The data in the second column showed the number of students who correctly answered the question.

Item	Raw Score	Difficulty Measure	Model S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	MISFIT TYPE
13	121	.01	.12	1.24	5.5	1.32	6.0	Underfit
14	50	1.35	.16	1.10	1.0	1.19	1.4	Fit
8	84	.62	.14	1.16	2.4	1.18	2.2	Underfit
28	145	-.35	.12	1.15	4.2	1.18	4.0	Underfit
5	87	.56	.13	1.13	2.1	1.14	1.8	Underfit
10	111	.16	.13	1.09	1.9	1.14	2.5	Fit
42	98	.37	.13	1.10	1.8	1.13	1.9	Fit
38	98	.37	.13	1.07	1.3	1.10	1.5	Fit
31	89	.53	.13	1.00	.0	1.08	1.1	Fit
22	81	.67	.14	1.07	1.1	1.07	.8	Fit
44	63	1.04	.15	1.00	.1	1.06	.6	Fit
48	147	-.38	.12	1.05	1.5	1.05	1.2	Fit
41	100	.34	.13	1.01	.1	1.05	.7	Fit
12	138	-.25	.12	1.04	1.2	1.04	1.0	Fit
23	237	1.87	.15	1.00	.1	1.04	.4	Fit
34	138	-.25	.12	1.02	.6	1.04	.9	Fit
33	216	1.46	.13	1.03	.6	1.01	.2	Fit
27	59	1.13	.15	1.03	.4	.99	.0	Fit
37	206	1.29	.13	1.00	.0	1.03	.4	Fit
6	66	.97	.15	.96	-.5	1.03	.3	Fit
32	157	-.53	.12	1.01	.4	1.03	.6	Fit
4	105	.26	.13	1.01	.3	.98	-.3	Fit
49	88	.55	.13	.99	-.2	1.01	.1	Fit
35	103	.29	.13	1.00	.1	.99	-.1	Fit
18	91	.49	.13	1.00	.0	1.00	.0	Fit
50	120	.02	.12	1.00	.0	.99	-.2	Fit
15	126	-.07	.12	1.00	-.1	.99	-.2	Fit
20	107	.23	.13	.99	-.2	1.00	.0	Fit
39	200	1.19	.13	1.00	-.1	.99	-.2	Fit
45	121	.01	.12	1.00	-.1	.99	-.1	Fit
47	195	1.11	.13	.97	-.6	.99	-.1	Fit
11	106	.24	.13	.99	-.3	.97	-.5	Fit
17	130	-.13	.12	.98	-.4	.98	-.4	Fit
25	153	-.47	.12	.98	-.5	.97	-.7	Fit
40	211	1.37	.13	.95	-1.0	.98	-.2	Fit
46	131	-.15	.12	.97	-.8	.96	1.0	Fit
43	82	.65	.14	.96	-.6	.96	-.4	Fit
19	169	-.71	.12	.95	-1.3	.94	1.2	Fit
3	154	-.49	.12	.95	-1.5	.93	1.6	Fit
29	80	.69	.14	.93	-1.0	.92	-.9	Fit
24	128	-.10	.12	.93	-1.7	.91	2.0	Fit
16	97	.39	.13	.93	-1.4	.93	1.1	Fit
30	112	.15	.13	.93	-1.6	.91	1.8	Fit
26	74	.81	.14	.91	-1.3	.92	-.9	Fit
36	196	1.12	.13	.90	-2.4	.91	1.4	Overfit
2	165	-.65	.12	.91	-2.9	.88	2.7	Overfit
1	185	-.95	.12	.90	-2.7	.85	2.7	Overfit
21	46	1.45	.17	.88	-1.1	.88	-.9	Fit
7	120	.02	.12	.87	-3.4	.85	3.2	Overfit
9	88	.55	.13	.86	-2.4	.84	2.3	Overfit
Mean	123.5	.00	.13	1.00	-.1	1.01	.1	
S.D.	46.1	.75	.01	.08	1.6	.10	1.6	

Table 2: Item Statistics: Misfit Order

Based on the value of the item difficulty estimates, which are expressed in logits, items 21, 14, 27, 44, and 6 appeared to be the most difficult items, having the highest value of the difficulty measure estimate. Item 21, which deals with the science to which the golden ratio belongs, is considered the most difficult item progressively, with the highest positive logit score.

Items 23, 33, 40, 37, and 39, on the other hand, are among the easiest because they have the lowest negative value of the item difficulty measure computed. Item 23, which covers inductive reasoning on number patterns and has negative logit estimates, was the most straightforward.

Figure 1 depicts the item characteristic curves (ICCs) for Item 23, the easiest item in this test, and Item 21, the most difficult item. It can be seen that the probability of success on Item 23 begins with a negative logit (-1.87), implying that even students with low ability have a chance of getting the item correct. In this case, there is a greater likelihood that more students will succeed in this item. Meanwhile, the ICC for item 21 shows that the likelihood of success on this item decreases from 1.5 to 7 logits. This only demonstrates that overcoming the difficulty of this item requires a high level of ability. As a result, students struggle to succeed in this item.
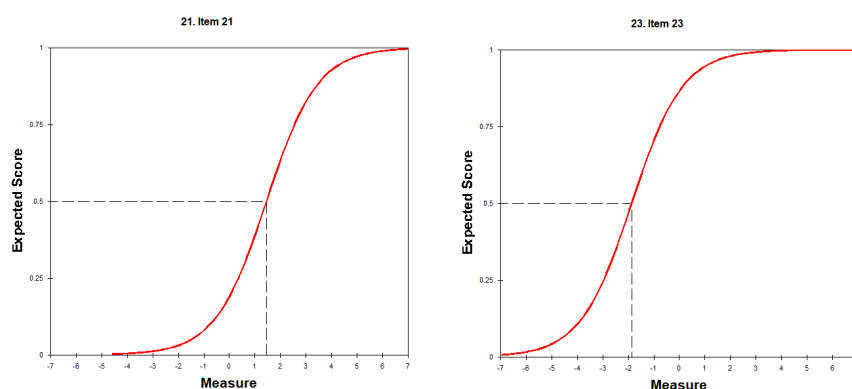
Figure 1: Item Characteristic Curves (or ICCs) for item 21 and item 23

In Rasch analysis, the mean of item difficulties was set to 0 points by default. Ignoring the measurement error for a moment, items 7, 13, 45, and 50 were calculated as having difficulty estimates that were closer to the exact value (0 logits). This means that the difficulty level of these items is within the range of the test-takers' abilities. In this case, the students have a 50 percent chance of correctly obtaining the item.

Test Item's Fit to the Rasch Model

The results of the individual test item fit statistics for both the unstandardized and standardized forms are also shown in Table 2. Mean squares are reported in the unstandardized form, while t-statistics are reported in the standardized form.

According to the findings, items 13, 28, 8, and 5 underfit the model because their infit t-values exceed 2.0 and their outfit t-values exceed 1.3. These positive fit statistics values indicate that the response string has more variation than expected; that is, it is less haphazard than expected. This means that a capable person gets easier items wrong unexpectedly, while

a less capable person gets harder items right unexpectedly. Similarly, the items' standardized mean square values revealed 13 to 24 percent more variation between the observed data and the model-predicted response pattern than would be expected if the data and the model were perfectly compatible. The presence of these underfit items in the test may degrade the test's quality; thus, the test developer should re-examine these items and scrutinize any mistakes or errors that may have been made in the test item's construction.
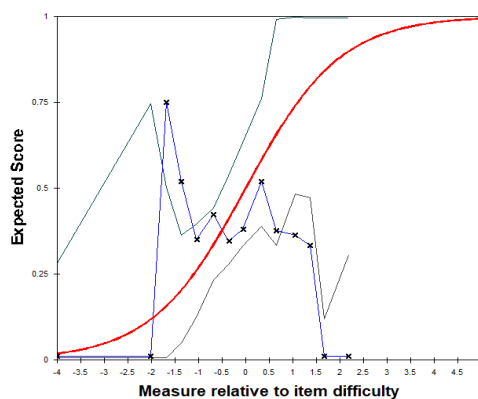
Figure 2. Actual person performance versus theoretical item characteristics curve (ICC) for underfit item 13

Figure 2 depicts the fit for the actual student performances (the jagged empirical ICC, blue curve) against the Rasch model expectations (the theoretical ICC, red curve) for item 13, the test item with too much variation and an almost exact difficulty estimate (0 logits).

The segment of the output for item 13 shows poor fit characteristics from the modeled expected, though its mean square value is not too bad. A poor fit indicates that the actual performance of the test-takers deviated from the modeled expectation. In this case, a slight deviation was observed between -2.0 and -1.0 logits and from a logits measure greater than 0.5. The curve also shows that students with a low level of ability have a higher chance of getting this item correct than those with a high level of ability, which is not expected.

Items 7, 2, 1, 9, and 36, on the other hand, overfit the model because their infit t values are less than -2 logits and their outfit statistic is less than 0.75 logits. These values indicate less variation than was modeled, implying that the response string is more similar to the Guttman-style response string, in which all easy items are correct and all difficult items are incorrect. The value of the infit mean square confirmed these findings, revealing a range of 9 to 14 percent less variation in the observed response pattern than was modeled. Although the presence of overfit items has few practical implications, test developers should be wary of their presence because these items may inflate test item reliability, leading us to conclude that the quality of our measure is higher than it is; additionally, the omission of overfitting items may rob the test of its best items; thus, a revision of these items should be performed first before recommending its deletion.

Figure 3. Actual person performance versus theoretical ICC for overfit item 7

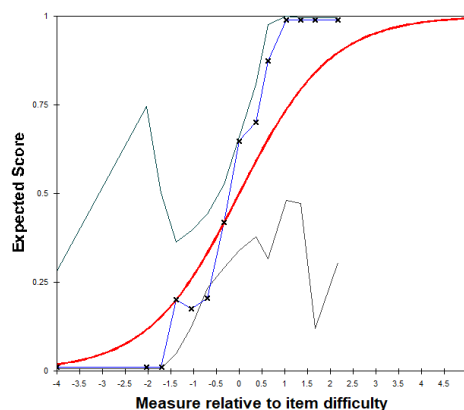Figure 3 displays the students' actual performance versus the theoretical item characteristics curve (ICC) for Item 7, a question with too little variation from the expected model. The figure shows that the students' actual performance ranges from 1.0 to 2.0 logits higher than those predicted. Similarly, their results below -1.5 logits deviated from the model, which was lower than expected. Overfitting for a low ability group indicates that the item can distinguish between minor differences in ability. An overfit is considered good in Classical Test Theory. According to Rasch theory, it is not a bad thing, but it usually indicates that something else is going on, such as item dependency (Linacre, 2017).

The item's difficulty level was at the midpoint of the test. As shown in Table 2, its mean square values are not too bad and are closer to the expected value of 1.0. The t-statistics, on the other hand, deviated farther from what was expected of the model. The item clearly follows the Guttman style in this case, as it overestimates the expectation based on the item's difficulty and the students' ability.

The findings on the underfit and overfit items only show that the observed data on these items do not conform to the Rasch Model because they have a value of outfit and infit t statistics that fall outside the acceptable range, despite having an almost exact difficulty level estimate. This simply means that these items are less compatible with the model than expected. Furthermore, these items imply the presence of multidimensionality; thus, they should be modified, discarded, or amended to focus on the target latent trait being tested. The evaluation of "fit" items to the Rasch Model ensured the measurement instrument's quality (Boone, Staver, and Yale, 2014).

Furthermore, while the mean of the unstandardized fit estimates (i.e., mean squares) computed is close to the expected value of 1, with the infit and outfit mean squares being close to that ideal, the mean and standard deviation of the standardized version of fit estimates (t statistics) show a slight deviation from the expected values of 0 and 1, respectively. These findings confirmed that the test was less compatible with the model's expectations due to these misfit items.

Items that satisfy the requirement for the mean square value and t statistics, on the other hand, are considered to have a good fit and be compatible with the modeled expected. Figure 4 depicts the students' actual performance versus the theoretical item characteristics curve (ICC) for item 50, one of the items with a good fit. The points plotted on the jagged curve (blue curve) represent the actual test performance of the 300 students. When the

performances fit perfectly to the Rasch model, the smooth curve (red curve) models the expected performance of the interaction between persons and the item (an impossible expectation).
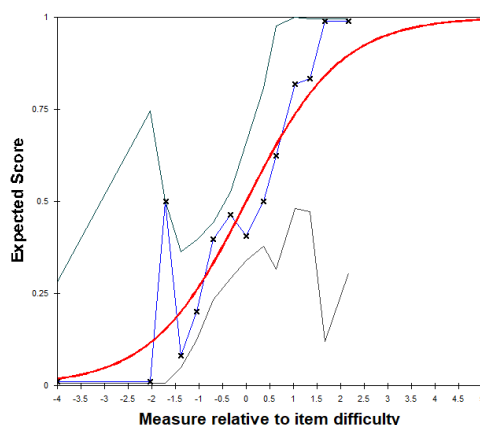
Figure 4: Actual person performance versus theoretical ICC for item 50

According to Figure 4, the students' performance in item 50, as reflected by the plotted points of their mean actual responses, is quite close to the Rasch model expectation of performance (the ICC). Although there was a slight deviation from the modeled curve around -2.0 logits relative to the item difficulty, this is the variation of actual around expected predicted by the Rasch model.

In this case, the infit and outfit mean square values for both items were close to 1.0, while their standardized versions, the infit and outfit t-statistics, were close to zero. These values only indicate the compatibility of the item with the model in addition to its difficulty measure estimate, which falls at the midpoint of the test with an almost exact value (0 logits).

Item Difficulty and Student Ability Relations

Figure 5 displays a wright map of the relationships between the students' ability and the difficulty of the items. As quality evidence, this graphical representation connects item difficulties and student ability estimates on a common scale; thus, both variables should match to justify that the test is maximally informative (Junpeng, 2020).

The distance of the step from the bottom of the path represents the difficulty of the item relative to other items. This is our representation of the item difficulty. Closer to the bottom is easier, and farther away is more difficult. Based on the representation of persons and items on the map, Item 33 was much more difficult than Item 23, whereas Item 21 was the most difficult on this test. In this test, most students did not succeed in Item 21. Item 23, however, was easy. In fact, the easiest on this test, and most of the students got Item 23, correct. These findings show that all items were useful for discriminating ability among students of this group since not everyone was successful on the easiest item or got the most difficult item wrong.

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                     .   |S item 22   item 29   item 43
                    .#    |  item 5    item 8
                   .##    |  item 18   item 31   item 49   item 9
                   .##    |  item 16   item 38   item 42
                   ##   S|  item 35   item 4    item 41
                   .##    |  item 10   item 11   item 20
                   ##     |  item 30
           0      ###    +M item 13   item 45   item 50   item 7
                 #####    |  item 15   item 17   item 24   item 46
                  ####    |
                 .#####    |  item 12   item 34
            .############ M|  item 28   item 48
               .######    |  item 25   item 3    item 32
                .######    |  item 2
                 ######    |S item 19
                 ######    |
                 .#####    |
          -1              +  item 1
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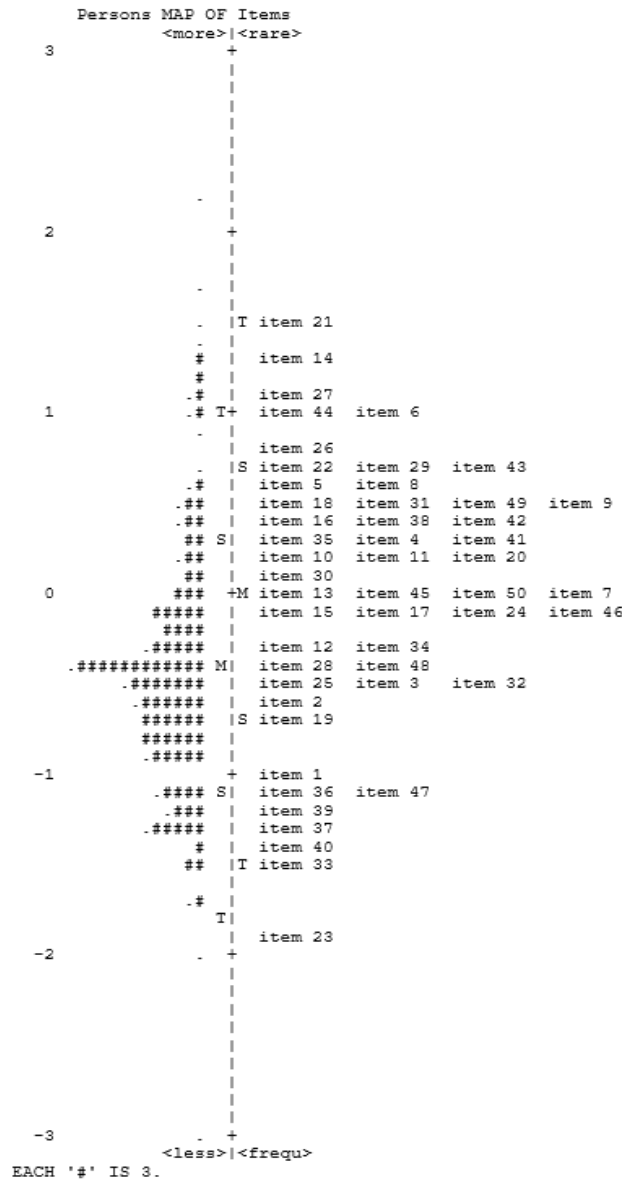
Figure 5: Item-person Wright Map

In addition, items 7, 13, 45, and 50 are located at 0 points in the item-person map for having an almost exact difficulty estimate (0 logits). Nine students had a 50 percent chance of getting these items correct. Furthermore, 57 more students could probably get these items right with more than a 50 percent probability of success. However, the remaining 78 percent of the total number of takers failed in these items.

This result shows that this type of test is somewhat a little bit difficult for the examinees' level of ability, although there are two students with a perfect score of 50. It can be observed that only one-third of the total samples have an equal to or higher than 50 percent chance of obtaining a correct answer on half of the total items. This means that the level of ability of the majority of examinees did not exceed the level of difficulty of the majority of the items. The figure shows that the majority of examinees failed the exam. This result could be regarded as a serious inadequacy in a test from a general test development perspective. The test requires even easier questions to raise the "ceiling" of the test. Otherwise, teachers need a better teaching strategy to facilitate their students' learning (Bond & Fox, 2012).

Item and Person Reliability

Table 3 presents the reliability of the test items. It includes an overall summary of the items' mean difficulty estimates, item and person reliability, and separation. The table shows a large positive value for the item difficulty mean estimate, which indicates that the test is difficult for the sample group of students who took the examination. This corroborates the results reflected in the item-person Wright map shown in Figure 5. The standard deviation of 46.1 for item estimates indicates a greater spread of item measures or variation in those measures than with person measures.

In this test, the reliability of the item difficulty estimates (0.97) was very high on a scale of 0 to 1, and was more than acceptable. Moreover, the item separation value of 5.54 expresses that the persons have differentiated more than five levels of item difficulty. These findings indicate that we can quite readily rely on this order of item estimates to be replicated when we administer the same test to other groups of students for whom it is suitable. According to Nielsen (2018), good measurements should have a high degree of reliability if the scores are consistent. However, the findings of the overfitting items may affect the level of reliability. Thus, further examination of the effects of these items on test reliability should be performed.

However, the person reliability index (0.77) is relatively high. This suggests that if the same group of persons were to be given another set of items measuring the same construct, almost the same estimate of a person's ability would be expected. The person separation of 1.81 states that items were able to differentiate between more than one level of a person's ability.

Statistics	Score (Item)	Score (Person)
Mean	123.5	20.6
S.D.	46.1	6.9
SD (adjusted)	0.74	0.60
Real RMSE	0.13	0.33
Item/Person Reliability	0.97	0.77
Item/Person Separation	5.54	1.81

Table 3. Summary of Item and Person Estimates

Unidimensionality of the Test

The unidimensionality of the test was examined through Principal Component of Analysis (PCA) of residuals in Rasch. Unidimensional means that the test only measures one's ability (Susongko, 2016). Tables 4 and 5 summarize these findings.

The data in Table 4 reveal that there was a total variance of 65.9 eigenvalue units in the observations. Of this total variance, 15.9 eigenvalue units were explained by person and item measures. Meanwhile, the unexplained variance had 50 eigenvalue units that covered more than 75 percent of the total variance. This value varies from the result of the Rasch measure and the difference is significant. This obtained value of the unexplained variance from other sources could be anything not meant to be included in the test; hence, it was not explained by the Rasch measurement.

		Empirical		Modeled
Total variance in observations	= 65.9	100.0%		100.0%
Variance explained by measures	= 15.9	24.2%		24.6%
Unexplained variance (total)	= 50.0	75.8%	100.0%	75.4%
Unexplained variance in 1st contrast	= 3.2	4.8%	6.4%	
Unexplained variance in 2nd contrast	= 2.5	3.8%	5.0%	
Unexplained variance in 3rd contrast	= 2.1	3.2%	4.2%	
Unexplained variance in 4th contrast	= 2.0	3.0%	4.0%	
Unexplained variance in 5th contrast	= 1.7	2.5%	3.3%	

Table 4. Table of Standardized Residual Variance (in Eigenvalue Units)

Based on the results, substantive structures contribute to unexplained variance. After extracting information from the data through Rasch measurement, residuals were left, as reflected in the contrasts indicated in the findings. Residuals are the observed performance of students on the item minus what is expected by the Rasch model. The smaller the residuals, the better the data fits the model (Kazemi, 2020). In this case, the results show five contrasts, and some consist of more than 2 eigenvalue units which indicates the existence of potential dimension (Linacre, 1998; Ee, Yeo, and Kosnin, 2018). Hence, a principal component analysis of Rasch residuals (PCAR) or linearized Rasch residuals was employed to extract meaningful information from these contrasts. Table 5 presents a summary of the findings for the first factor, which had the highest factor sensitivity ratio among the contrasts.
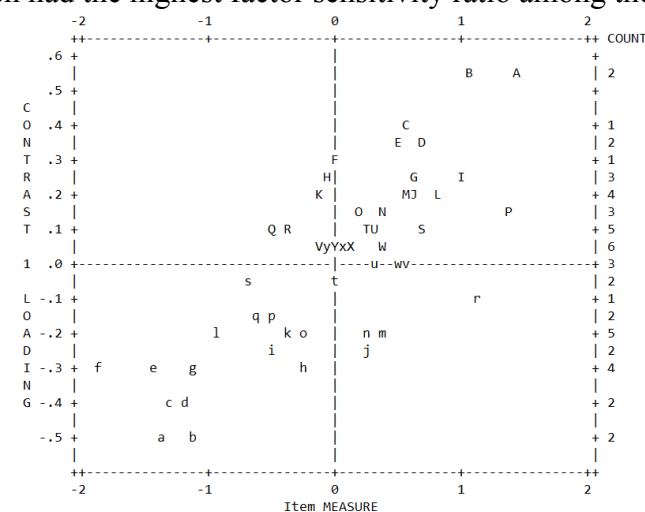

Figure 6. Standardized Residual Variance Scree Plot (Contrast 1)

In the first contrast, the unexplained variance was 3.2 units which means that there were around three eigenvalues creating a subdimension in the data. These items have something in common other than the Rasch dimension, which clusters these items together. Figure 6 shows the factor plot of the standardized residuals after the primary Rasch dimension was extracted. It can be seen that items 21(A), 44(B), and 9(C) have higher factor loadings and can be seen at the top of the map. These items have substantial variance that remains unexplained by the primary Rasch measure.

Table 5 lists the factor loadings for the first dimension (contrast 1). These loadings indicate three items (21, 44, and 9) with substantial positive loadings on the factor discovered in the item residuals (i.e., with an off-dimension loading of 0.4 or greater). On the other hand, two items (40 and 36) are negatively correlated with the factor.

Loading	Measure	Infit Mnsq	Outfit Mnsq	Entry Number		Item
.55	1.45	.88	.88	A	21	Item 21
.53	1.04	1.00	1.06	B	44	Item 44
.42	.55	.86	.84	C	9	Item 9
.37	.69	.93	.92	D	29	Item 29
.36	.49	1.00	1.00	E	18	Item 18
.28	.02	1.00	.99	F	50	Item 50
.27	.65	.96	.96	G	43	Item 43
.27	-.07	1.00	.99	H	15	Item 15
.27	.97	.96	1.03	I	6	Item 6
.21	.62	1.16	1.18	J	8	Item 8
.21	-.13	.98	.98	K	17	Item 17
.19	.81	.91	.92	L	26	Item 26
.19	.55	.99	1.01	M	49	Item 49
.17	.39	.93	.93	N	16	Item 16
.17	.16	1.09	1.14	O	10	Item 10
.15	1.35	1.10	1.19	P	14	Item 14
.11	-.47	.98	.97	Q	25	Item 25
.10	-.38	1.05	1.05	R	48	Item 48
.10	.67	1.07	1.07	S	22	Item 22
.10	.23	.99	1.00	T	20	Item 20
.08	.29	1.00	.99	U	35	Item 35
.07	-.10	.93	.91	V	24	Item 24
.06	.37	1.07	1.10	W	38	Item 38
.06	.15	.93	.91	X	30	Item 30
.04	.02	.87	.85	Y	7	Item 7
.04	-.15	.97	.96	y	46	Item 46
.03	.01	1.00	.99	x	45	Item 45
.00	.53	1.00	1.08	w	31	Item 31
-.50	-1.37	.95	.98	a	40	Item 40
-.50	-1.12	.90	.91	b	36	Item 36
-.39	-1.29	1.00	1.03	c	37	Item 37
-.38	-1.19	1.00	.99	d	39	Item 39
-.32	-1.46	1.03	1.01	e	33	Item 33
-.31	-1.87	1.00	1.04	f	23	Item 23
-.29	-1.11	.97	.99	g	47	Item 47
-.29	-.25	1.02	1.04	h	34	Item 34
-.27	-.53	1.01	1.03	i	32	Item 32
-.24	.24	.99	.97	j	11	Item 11
-.22	-.35	1.15	1.18	k	28	Item 28
-.21	-.95	.90	.85	l	1	Item 1
-.18	.37	1.10	1.13	m	42	Item 42
-.18	.26	1.01	.98	n	4	Item 4
-.18	-.25	1.04	1.04	o	12	Item 12
-.17	-.49	.95	.93	p	3	Item 3
-.14	-.65	.91	.88	q	2	Item 2
-.10	1.13	1.03	.99	r	27	Item 27
-.06	-.71	.95	.94	s	19	Item 19
-.06	.01	1.24	1.32	t	13	Item 13
-.01	.34	1.01	1.05	u	41	Item 41
.00	.56	1.13	1.14	v	5	Item 5

Table 5: Principal Component Analysis of Standardized Residual Correlations
for Items on First Dimension (Sorted By Loading)

These findings provide empirical evidence for the existence of a separate subscale. However, it is up to the researcher to decide whether this is sufficiently large and meaningful to measure separately from Rasch measures. The costs/benefits of including these items as part of the original Rasch dimension, hence potentially losing some sensitivity or validity of the

measurement, or excluding these items from the total score and works towards assessing and interpreting the other dimension separately should be reflected.

Conclusion

This study focuses on the application of the Rasch model, an IRT approach for test item analysis. Based on the findings, the test appeared to be difficult based on the takers' level. Hence, there is a need to construct easier questions or better teaching strategies to facilitate the learning of their students.

In addition, further examination of the effect of the overfit items on the level of test reliability was suggested by the analysis. Based on the findings, these recommended modifications of the test show that even if a test had already undergone content validity through experts in the given field, the Rasch measurement model can be of tremendous value by offering greater precision in diagnosing and validating a test, as well as in the assessment of the students (Karlin & Karlin, 2018).

Furthermore, it shows that the examination subjected to Rasch analysis still had some misfit items. Moreover, several substantive structures contributed to the unexplained variance. These findings provide empirical evidence for the existence of a separate subscale or multidimensionality, which suggests a modification, discarding, or amendment of the misfit items, focusing on the target latent trait being tested.

This research demonstrates the importance of applying an Item Response Theory (IRT) approach to item analysis. In this case, Rasch analysis was applied to introduce teachers to one of the robust tests that can be used for item analysis. In addition, most of the test being constructed was of a multiple-choice type; hence, this study found it beneficial to let teachers explore and learn the IRT approach applicable to a dichotomously scored test.

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Leveraging the ALACT Reflection Model to Improve Academic Skills Development in Bachelor Students: A Case Study

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Abstract

Academic skills are essential in most future professions for students, yet frequently receive sporadic or ineffective attention throughout higher education. Therefore, we set out to implement the ALACT reflection model in a second-year academic skills course within the bachelor's program in Pharmaceutical Sciences. The model was applied to both presentation and teamwork skills which are practiced in a relevant academic context. As such, the aim was to improve the timeliness and level of insight students have into their strengths, growth, and points for improvement. The ALACT model is a spiral approach to reflection where students begin with (1) a concrete experience, (2) observing and reflecting, and then (3) forming abstract concepts and generalizations about the experience. These are used (4) to create an action plan which is then (5) enacted. The last step forms the new experience from which the cycle repeats. Previous research suggests that the conscious and consistent implementation of the ALACT model can provide a basis for meaningful self-evaluation and increased competency and confidence. Therefore, we redesigned the month-long course to ensure the five steps were well-integrated and that students would complete the spiral at least twice for each skill. Results from lecturer interviews and a student questionnaire indicate that the intervention leads to increased awareness of existing competencies and steps for improvement, and a very positive view of reflection and its role in skills development. A review of the practical considerations for implementing the ALACT model in academic skills courses within science education is also provided.

Keywords: ALACT, Reflection, Academic Skills, Presenting, Teamwork, Higher Education

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Introduction

Employability in almost every field is rarely solely dependent on subject knowledge; academic skills such as critical thinking, teamwork, and presentation skills are also needed to successfully complete complex tasks. However, 51% of executives find that graduates entering their companies have a skills gap (Kenworthy & Kielstra, 2015), only 52% of graduates can effectively solve problems or perform a critical analysis, and just 48% are seen as able to work effectively as part of a team (Chartered Management Institute, 2018). These results are striking, as problem-solving and teamwork are the most important skills for employees today (Kenworthy & Kielstra, 2015). The development of academic skills within universities can therefore aid students in bridging this gap between their university and the professional world (Andrews & Higson, 2008; Dolce et al., 2020; Moore & Morton, 2017; Robles, 2012). Targeted instruction and training are necessary for effective skill development (Cottrell, 2001) but are often lacking as such skills are frequently superficially trained (McLaughlin et al., 2019; Morbitzer et al., 2021; Wu-Pong et al., 2013).

We strongly believe in the importance of explicitly teaching and practicing skills and are always looking for better approaches to skill development within content-heavy curricula. As skills are both versatile and context-dependent, it is logical to teach *how* a skill is learned. This aids students in adapting to new situations after graduation as they will be able to efficiently learn new skills within a professional context. Learning how to learn requires 'self-regulated learning' (Zimmerman, 2000): the ability to regulate aspects of one's thinking, motivation and behavior while learning. Self-regulated learners create meaningful, achievable goals against which they assess progress. An effective way to develop self-regulation is to provide opportunities to practice regulating aspects of their own learning and reflect on that practice (Nicol & Macfarlane-Dick, 2006). Through reflection, students gain the insight needed to correct bad habits and affirm good habits.

In this case study, we describe the implementation of a structured reflection model in an undergraduate academic skills course with the aim of improving students' capacity for self-regulated skills learning. To this end, we chose to work with the ALACT model (Korthagen, 1985) to provide a scaffolded reflection process that promotes self-regulated learning through helping students become aware of their own skill level, learning process, and the actions they can take to influence this.

The undergraduate academic skills course Modern Developments in Pharmaceutical Sciences (MDPhar) was selected for this research, due to its established strong course design, with several opportunities to practice academic skills within a relevant discipline-related context (Bologna Working Group on Qualifications Frameworks, 2004; Rotherham & Willingham, 2010). Student evaluations over the past years also reflected a consistently high satisfaction rate. This offers the possibility to look at one specific adjustment to an already successful course, giving a more precise view of the effect of the implementation of the ALACT model.

The MDPhar course focuses primarily on developing teamwork and presentation skills. We therefore conducted a mixed methods analysis to assess *how students and lecturers experience the implementation of the ALACT reflection model as a tool to support the development of presentation and teamwork skills*. As such, we aimed to contribute to the understanding of how this model can be implemented in undergraduate education. We will begin with a detailed description of the context for the research and the theoretical reasoning behind it before outlining the methods and results.

Course overview before ALACT implementation

MDPhar is taught to 50-60 second-year Pharmaceutical Sciences bachelor students at the Vrije Universiteit Amsterdam, the Netherlands. The course lasts four weeks and is situated at the end of the academic year. Students work on a project in randomly assigned groups of three students, and various activities are included to promote skill development, including presentations and reports. Figure 1A shows an overview of the course activities as taught completely online in 2020 and 2021.

In the first week, the students reflected on previous teamwork and presentation experiences using a teamwork competency framework, presentation rubrics, and targeted questions (Braadbaart, Vuuregge, Houtkamp, et al., 2023). Based on this reflection, they formulated personal learning goals for both skills. Each group also wrote an action plan, with division of tasks, group expectations, and work agreements. Students received lecturer feedback on the personal learning goals and the group action plan. During the course, students continued working on their teamwork and presentation skills through practice, peer feedback and check-ins with lecturers. A more extensive description of the course activities in 2020 and 2021 can be found in Figure 1. In the final week, students were provided with questions to reflect on their skill development progress in a report and adjust their learning goals for future practice opportunities.

The peer feedback activities, establishing learning goals, and group action plan were assessed as a pass or fail. The presentations and reports were assessed with grades (1-10) using rubrics (Braadbaart, Vuuregge, Houtkamp, et al., 2023).

Figure 1: Overview of the MDPhar course timeline including the learning activities divided over the two learning lines "teamwork" and "presenting".
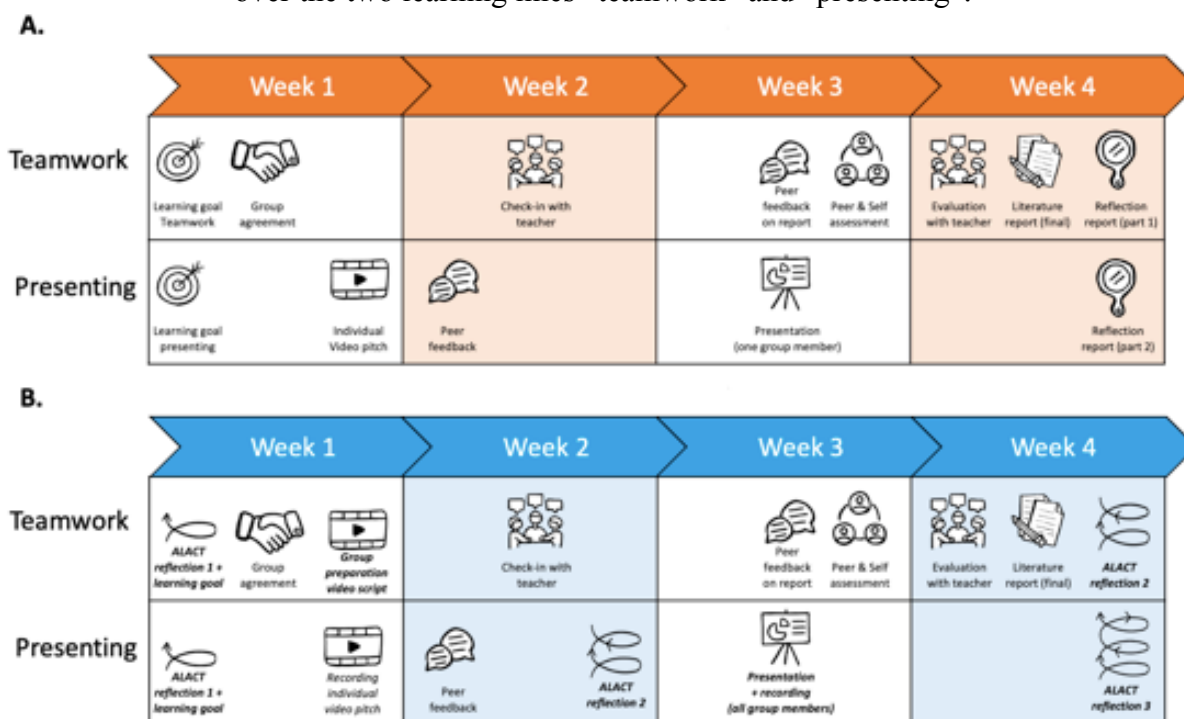
Note. **A**. *The orange overview represents the original course design with learning activities from 2020 and 2021. The teamwork learning progressions centered around writing a literature review. Several online open office hours were organized each week to answer questions. The teamwork was further guided by a 10-minute online check-in moment in the second week. In the third week, each group conducted a peer review of the report*

*of another group. Each student also used the teamwork competency framework to perform a self-assessment and provided peer feedback to their group members. During an evaluation meeting with the lecturer in week four, each group discussed the teamwork process, skills development, and the peer feedback on their literature review. In the fourth week, they submitted the final literature review. To practice presentation skills, the students prepared and recorded an individual video pitch in the first week in which they pitched a solution to a relevant scientific question, without slides. Each student received asynchronous peer and lecturer feedback on their presentation skills via the learning management system (LMS) using FeedbackFruits, focusing on argumentation and (non) verbal communication, especially related to their learning goal. Students were instructed on the feedback criteria and how to give good-quality feedback. In the third week, the students prepared a scientific presentation on their literature review using slides. Just before the presentation, the lecturers randomly chose which group member would present to the lecturers and classmates on behalf of the group. The presentation was followed by a discussion with another group and the lecturers. **B**. The blue overview depicts the redesign of the course in 2022. Changes compared to the original design are shown with bold italic text. The changes relate to the implementation of the ALACT model for reflection throughout the course (ALACT reflection 1-3), and the optimization of the video pitch and literature presentation to support skill practice. The video pitch optimization included preparation of a video script with the group, while still presenting individually. Moreover, the video pitch was connected to the group literature review. For the literature presentation, all group members presented instead of only one as previously. Moreover, the live literature presentation was recorded on video to aid the individual reflection process.*

Research impetus

Student evaluations in 2020 were overall positive. Students indicated through verbal feedback to lecturers, reflective reports, and an anonymous survey (N=19, 39%), that they appreciated the course format, specifically the focus on the active development of their teamwork and presenting skills. Most of the survey participants (89%) agreed that they were "sufficiently challenged to further develop their academic skills". Similarly, most respondents (89%) agreed that they had "received valuable feedback … to improve their work and skills in the future". The lecturers were also very positive about the results and felt that the students were more actively engaged in their skills development.

The pass rates were similar to pre-Covid19 years (data not shown) and the 2021 rerun of this online set-up had similar results. It therefore appears that the teaching of teamwork and presenting skills can be done effectively online. However, the lecturers saw room for optimization of the course setup. Due to the position of the reflection report at the end of the course, the lecturers had the impression that many students did not fully appreciate its usefulness and did not adjust their way of working during the course. The report was also quite extensive, which led to both a high grading workload and incomplete answers due to some questions being skipped. Students also mentioned that they would appreciate more practice opportunities. This aligned with lecturer observations that many groups started collaborating relatively late, probably due to the individual video pitch assignment at the beginning. Additionally, since the literature group presentation was only presented by one group member, two-thirds of the students only had one practice opportunity for presenting.

Theoretical framework

Following the 2021 course run, opportunities for optimization were identified to more consistently engage students in a practice-reflection cycle, thereby reaping the most benefit for their academic skills development. This meant prioritizing the promotion of learning *how to learn skills* by optimizing the links between reflection and practice and offering moments for supported self-regulation.

Towards this end, the ALACT reflection model was selected (Korthagen, 1985). ALACT is an acronym for the five phases within the model, which include *Action*, *Looking back*, *Awareness*, *Create*, and *Trial* and a full description of those phases can be found in Figure 2. The ALACT model has a long history in teacher education, though other fields have also begun to use it in their training. There are only a few examples of this extension of the model, often in the medical sciences (Driessen et al., 2008; Hulsman et al., 2009; Michels et al., 2010) and sport psychology (Hutter et al., 2015). As ALACT focuses on the reflection process rather than the context (Korthagen, 1985; Korthagen et al., 2001), it appears to transfer well to other disciplines. The use of the ALACT model to support reflection has been correlated with a greater capacity for growth and development (Wubbels & Korthagen, 1990), improved quality of work (Syslová, 2019), and increased confidence and competency due to the combination of reflection and practical experience (Hutter et al., 2015).

Reflection has been proven to positively impact learning, particularly for the stimulation of 'deep learning' (Hattie & Donoghue, 2016) and is also a reliable self-assessment process (Learman et al., 2008). However, students also often need help to reflect accurately on their experiences (Korthagen & Vasalos, 2005; Lai et al., 2017). Hulsman et al. recommend that in order "to develop a more accurate impression of oneself, the meta-cognitive judgment of one's performance should be accompanied with systematic and intentional elicitations of the views of others" (2009, p. 143). Peer feedback is an effective way to provide the "views of others", and was already implemented within the course (Ambrose et al., 2010; Biggs & Tang, 2011). However, we felt that peer feedback and reflection could be combined more effectively to optimize practice moments, minimize additional lecturer workload, and ensure timely, meaningful reflection on both presentation and teamwork.

The ALACT model is suited to these purposes for several reasons. Firstly, it explicitly acknowledges the role of irrational and emotional factors contributing to behaviors (Korthagen & Vasalos, 2005). Both teamwork and presentation can be emotionally loaded activities: consider for instance a fear of presenting, perfectionistic tendencies, or friction between group members. In contrast, other reflection models such as that of Kolb & Fry (1975) emphasize abstract conceptualization over awareness of other sources of behavior (Matsuo & Nagata, 2020). Korthagen actually highlighted the ALACT model's value in reflecting on collaborative situations and emphasizes the prioritization of reflective thinking as "a fundamental program learning goal before the field-based experience" (1985, p. 12).

Secondly, and perhaps most importantly, the authors recognized the value of a reflection cycle which emphasizes growth stimulated by previous experiences and a repetitive reflection process. Successful reflection is not a discrete task, but an ongoing process that continuously builds on previous experiences (Bruner, 1960; Korthagen, 1985), and thereby leads to continuous improvement, as represented in Figure 2B. We chose to therefore picture the ALACT model not as a circle, as is traditionally done (Figure 2A), but as an upwards spiral (Figure 2B). This conceptualization allowed the lecturers to clearly visualize how students would work through the various 'loops' throughout the course, ensuring that there was alignment between reflection assignments, feedback, and practice moments.

Altogether, we believe that these considerations make the application of the ALACT model to academic skills in undergraduate education a novel and valid extension of the use of the model.

Figure 2: The ALACT reflection model.

A   **B**
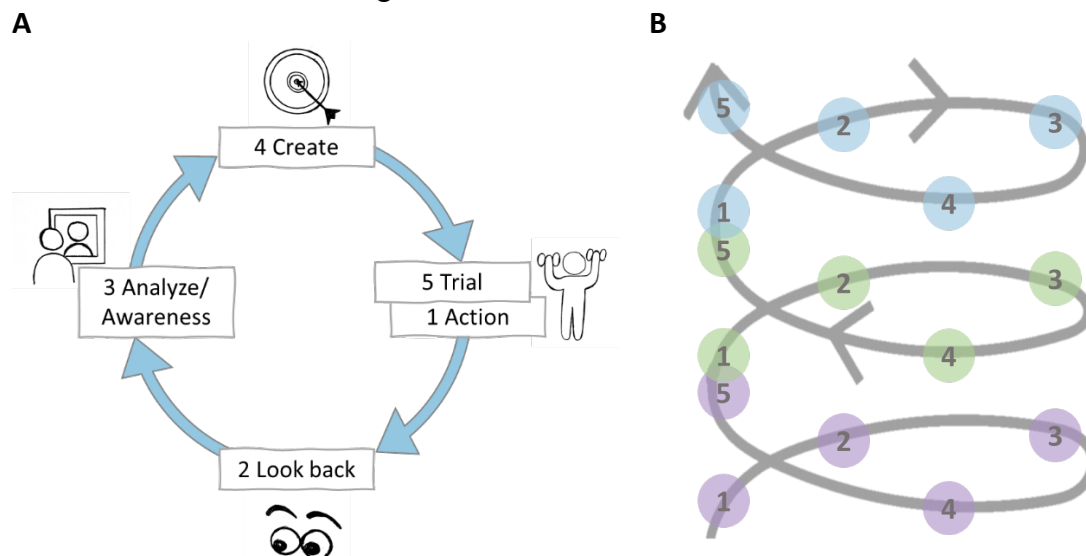
*Note. **A**. Representation of the different steps of the ALACT model: Phase 1: Action - Practice opportunity with given skill; Phase 2: Look back on and describe practice opportunity; Phase 3: Awareness of essential aspects; Phase 4: Create an action plan for the next learning opportunity; Phase 5: Trial - practice again with skill. Note: step 5 coincides with step 1, restarting the reflective cycle. **B**. Representation of the spiral nature of the ALACT reflection process, where subsequent reflective cycles are interconnected and build on each other, leading to continuous improvement in skill development.*

Redesign to optimize the reflection process

Following this spiral approach to the ALACT reflection model, the lecturers aimed to allow the students to go through the reflection cycle several times for each skill. It was also essential to ensure appropriate scaffolding at each step to support the reflection process in moving beyond merely reporting events (Creemers et al., 2013). Therefore, the frequency, timing and content of the reflection assignments were carefully attended to and two main adjustments were made to include more practice moments for all students (Figure 1B).

Firstly, to immediately encourage collaboration and working on teamwork learning goals, each group prepared a script for a pitch promoting their literature review to an audience with a general pharmaceutical sciences background. Each member still recorded the video pitch individually to allow for personal practice and feedback on presenting.

Secondly, each group member presented an equal part of the literature presentation, providing all students with a second opportunity to practice their presenting learning goal. This created three reflection cycles linked to presentation skills. A reflection assignment was created for each cycle: (1) at the beginning of the course in formulating the learning goal, (2) after the video pitch, and (3) after the literature presentation (Figure 3). To better support students in the 'looking back' and 'analysis' phases of the reflection process, all literature presentations were recorded on video. For teamwork skills, only two reflection assignments were included, as lecturers feared that more frequent reflection on collaboration would make it superficial or repetitive. These reflection assignments were positioned at the beginning and the end of the course (Figure 3).

The reflection assignments were constructed using the guiding questions from the previous reflection assignment (Figure 1A). These questions were matched with their respective ALACT phases. Some questions were rephrased and new ones were added to cover all

ALACT phases in each assignment. As such, scaffolding was provided to students not used to this way of reflecting. Students from another sciences bachelor programme were asked to answer a sample of the new ALACT-based reflection questions to further optimize the reflection questions. This resulted in a set of final questions that was presented to students as online question-and-answer quizzes for each assignment (Braadbaart, Vuuregge, et al., 2023a). A simple rubric was created to assess the responses of the students (Braadbaart, Vuuregge, Houtkamp, et al., 2023).

Figure 3: Implementation of the ALACT model throughout the MDPhar course
in the final redesign in 2022 as depicted in Figure 1B.
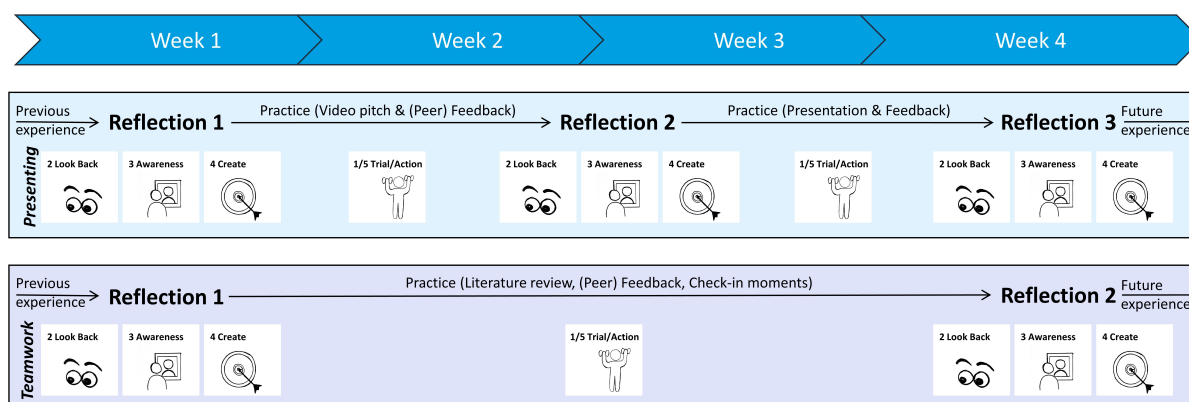
Note. The timeline for reflection activities with respect to presenting are indicated in light blue, whereas teamwork is shown in light purple. Reflection 1-3 refers to discrete reflection assignments with questions related to the indicated phases of the ALACT model. A brief description of the trial/action activities can be found above each horizontal arrow.

Research methods

The research was set up to explore the experiences of students and lecturers with the ALACT model and to identify perceived strengths and weaknesses in the implementation. Three data types were collected: student responses to multiple-choice questions, student responses to open questions, and semi-structured interviews with the three lecturers. All three lecturers are also collaborating authors on this article, inhabiting the role of *teacher-as-researcher* in an action research context (see Babkie & Provost, 2004; May, 1993; Watts, 1985) in which they are active critical inquirers in their own practice (Dewey, 1904).

At the beginning of the course, students were asked for informed consent to participate in the study. 22 out of 47 students consented to participate, of which 15 students started, and 14 students completed the research survey at the end of the course. Statistical analysis of the cohort was performed in R version 4.2.0 via the RStudio interface version 2022.07.2+576. Multivariate logistic regression analysis showed that the gender of the students, their subgrade for the reflection assignments, and their final grade for the course did not significantly influence the odds of giving consent to participate in the study or the decision to fill in the research survey at the end of the course.

Student perceptions of the ALACT model were gauged through a short survey (Qualtrics software) at the end of the course consisting of 5-point Likert-scale questions (Table 1) and four open questions (Table 2), all related to student experience with the reflection assignments and their skill development.

The answers to all open questions were independently coded and cross-checked by two authors using ATLAS.ti software version 22.2.5.0. They used inductive and deductive coding. Inductive coding focused on identifying themes within the data which would not be purely limited to reflection, e.g. feedback, course set-up, teamwork, and improvement of skills. Deductive coding examined the occurrences of each phase of the ALACT model. The deductive coding was checked for completeness, but as the original independent inductive coding sessions led to overwhelmingly similar conclusions, the validity of the codes and intercoder reliability were immediately evident.

All three *teachers-as-researchers* were invited for individual semi-structured interviews to explore their experiences with the ALACT model and the use of reflection in the course (Braadbaart, Vuuregge, et al., 2023b). Due to the different experience levels of the lecturers, the aim was to provide space for both novice and expert opinions, reflection on the various iterations and growth of the course, and contributions to the narrative of the research. The interviews were transcribed verbatim and edited for readability. They were coded inductively as well as deductively. Inductive coding resulted in two themes: course design choices and lecturer perceptions of student feedback, actions, or skill level. Deductive coding was based on the lecturers' use of the ALACT phases in their responses.

All teachers have a vested interest in the outcome of the work, though have endeavored to remain appropriately skeptical about the limitations of the research, as is discussed in the results. The initial student survey results were known, and it is clear that the lecturers were both pleasantly surprised by the feedback and still able to analyze potential explanations for various results.

Results

The results of the student surveys and lecturer interviews showed a cohesive picture with two key findings: (1) the ALACT model can be a useful tool for academic skills development, and (2) the structured process is highly suitable for guiding reflection in bachelor students. Each finding will be further elaborated below, followed by a brief overview of the points for improvement that emerged. See Table 1 for an overview of the Likert-scale survey item results mentioned within the text. An overview of the survey open questions can be found in Table 2.

ALACT reflection model as a useful tool for academic skills development

Initially, lecturers reported a need for a clearer focus on skills education with attention for teaching, practicing, and receiving feedback on skills. This was based on their own observations but also on direct reporting from students in-person or in course evaluations. The results show that the choice of the ALACT model facilitated the realization of this goal. Amongst students and lecturers alike there was an overwhelmingly positive view of the usefulness of reflection in developing academic skills within the revised course set-up.

When asked for their opinion about skills-reflection, almost every student mentioned areas relating to improved awareness of essential aspects and improvement of their skills. This was also reflected in the multiple-choice questions, where students overwhelmingly reported sufficient *support* in improving their skills (see statements 2, 3, 5, and 7 in Table 1). Interestingly, while students felt challenged to improve their presentation and teamwork skills (100% and 71% in agreement respectively; statements 1 and 8), only 53% for

presentation and 14% for teamwork felt their skills had improved (statements 4 and 11, respectively). This can potentially be attributed to the very short length of the course: students were provided with the right tools, but not enough time or a conducive teamwork situation to make large gains. In both presentation and teamwork, students agreed that they had developed an awareness of *how* to improve their skills (93% versus 79%; statements 6 and 10, respectively). In the open questions, a strong majority highlighted aspects of presenting as one of the most important things they learned with regards to skills.

Additionally, student comments further support the appropriateness of the ALACT model for skills education. Students noted that they "found it a very nice way to guide their development step-by-step" and that by reflecting on their skills "it becomes clearer what you should work on and how successful you can be by working on it". A common worry of the lecturers, particularly Lecturer B, is that student buy-in would be low. However, even if the initial impression is less than favorable, students still saw the value. As one student memorably stated:

> *I find it quite useful; reflection assignments seem useless, but they aren't actually. You learn a lot by reflecting on your presentations, but also by observing what you like when someone else is presenting. You can really improve yourself by doing this.*

In the survey, over 90% of students agreed that *the course helped them reflect more and more deeply on improving their skills than in other courses where these skills are addressed* (statement 14) and the same amount agreed that the course *has given them a better idea on how I can continue to improve my skills in a focused way in the future* (statement 13). This suggests that the ALACT model can be an effective way to teach students how to learn new skills. Among all open questions, a majority of the student responses were coded as demonstrating "awareness of essential aspects" (phase 3). This also indicates the depth of reflection: students were not just providing general answers or recalling what they had done, but providing detailed, specific answers about key concepts and ideas they would take with them – a desirable outcome for any course.

The lecturers also were generally positive about student performance, particularly in the students' active engagement with their learning goals and progress, as Lecturer C highlights:

> *The level of reflection will naturally differ per student. It's not like [the assignments] were all top quality. But I did have the impression, from conversations with students and also in reading the reflection assignments, that the students were just much more consciously working on their [skills].*

The lecturers also experienced the reflection assignments as much more focused and "on-topic" than previously. Moreover, they received positive verbal feedback from students regarding reflection and the extra attention to developing academic skills, especially in comparison to other courses.

Structured reflection using ALACT provides appropriate scaffolding for undergraduate students

When implementing the ALACT cycle, the lecturers focused on providing as much structure as possible. ALACT can be used as a tool to teach reflection, and the results support this scaffolded, step-by-step approach, even with second-year undergraduate students. Judging

from their responses in the survey, students were very appreciative of the repeated, spiral reflection versus "only at the end". They also found the assignment set-up accessible "due to the fact that there were separate questions you needed to fill in, and not an entire report". The scaffolding and repetition were valued and rarely seen as an extra burden. 100% of students completing the survey agreed that the course set-up should remain the same for next year (statement 15), and the open question responses mirrored this, with specific praise for the spiral design. For instance, one student says, "I was challenged to think about my learning goal and its development before, during, and after the literature assignment and presentation". Another appreciated that:

> *...you were required to think carefully about your skills, and also received feedback on this from both the lecturers and your peers. That way you heard how your skills were viewed by others. It was also good to set a learning goal because you actually go and work on it.*

Lecturer A noted that using a structured course set-up encourages students to "work much more actively [on their skills] … this improved the buy-in from students." Having a meaningful, structured set-up can therefore contribute positively to student engagement, particularly with activities such as reflection which students might traditionally find 'boring' or unmotivating.

Another interesting observation which supports a strongly structured set-up is how often students mentioned elements from ALACT phases 3, 4, and 5 in their responses to the open questions. Students were clearly being supported to move beyond "basic" reflection as many of us know it, which usually encompasses only phase 2: looking back. Students had clearly engaged in a more critical, action-focused form of reflection where they assimilated feedback, identified essential elements for success, and then proceeded to trial and assess different implementations. They frequently indicated the usefulness of peer and lecturer feedback in supporting their awareness of strengths and weaknesses, highlighting that implementing ALACT is strongly supported by ensuring these sorts of scaffolding activities at key moments in the reflection cycle.

The lecturers were also positive about the use of such a structured approach to reflection. A reoccurring theme was how the set-up helped make the students' learning "visible" (Hattie, 2009) throughout the course – not just at the end. Lecturer B highlighted that this also provides the student with "the space to improve within the course". In addition to space for improving, Lecturer C pointed out that students also learn *what* to improve: "all those phases seem very good in exposing what is actually important in order to be able to take the next step and continue building on that." This can also be attributed to the frequent feedback moments from peers and lecturers. And while feedback can be intimidating for students at first, the lecturers noted that it frequently boosts students' confidence. This was reflected in the high number of students reporting how helpful it was, because this "gives you a better view of your own skills". Students also reported "secretly actually enjoying presenting" and realizing "that I can actually present quite well just by preparing differently". While teamwork remained less central in the responses from students, lecturers did find that the team feedback moments and check-in's provide space for more difficult conversations.

Points for improvement

The structured use of ALACT was largely viewed as a positive experience, yet several points for improvement were also noted by lecturers and students. Although respondents generally agreed (79%, statement 12 in Table 1) that the reflection questions were clear, a few students mentioned in the open questions that there were redundancies in the reflective questions. The lecturers also agreed that these can be simplified in the future; as this was a pilot, the lecturers opted for questions which were as thorough as possible. Both students and lecturers found that the response length could be restricted, as some students wrote very little and others far too much. Next year approximate word counts will be provided. Nevertheless, only 14% of the students found the questions unclear (statement 12, Table 1) and many students were satisfied with the reflection assignments and would not change anything.

The lecturers noticed two elements for improvement that were not flagged by students. First, they were unsatisfied with the online tool used for the assignments as a workaround was needed to grade holistically instead of grading all questions separately. In general, we advise that lecturers carefully consider not just workload for students, but also time allocated for lecturer grading and ease of use of any grading system (Scholten et al., 2021). Secondly, lecturers also noted that additional support in creating learning goals could be advantageous as many students struggled to identify goals which were achievable in four weeks.

Lastly, many students noticed that the presentation line had three ALACT cycles while teamwork only had two; according to them, this led to the idea that teamwork skills received less attention and that they also had less insight into their teamwork skills development. In sharp contrast to presentation skills, where students were generally enthusiastic about what they had learned, only few students noted takeaways related to teamwork. These were primarily neutral – "I've learned how important a good collaboration is for good results" – or obviously linked to frustrations such as "in order to improve your teamwork skills, it is helpful if your group members are motivated for the project, which was not always the case for my group members" and "I realized that I find it difficult to raise issues when the collaboration is not going as it should".

We identified three possible reasons for this. Firstly, teamwork only had two cycles. This is due to the nature of teamwork and the shortness of the course. Lecturers originally thought that providing another reflection moment after just two weeks of working together would feel quite superficial. The check-in moments were used instead to keep an eye on the collaborations. The lecturers were pleased with the collaborations this year and found that there were fewer issues than in previous years. However, they are considering including a brief intermediate reflection moment or space to role-play common difficult situations. Secondly, it seems that students need more support to create actionable teamwork learning goals as compared to presentation goals. Even with lecturer feedback, many students struggled to create a learning goal (phase 4) which was concrete enough to be able to practice on in four weeks and also relevant for themselves and their team. Lastly, it must be acknowledged that teamwork is a complicated, longitudinal phenomenon that is more difficult to isolate into specific actions for success, as can be done with presenting. It therefore seems less likely that clear, concrete progress is made in just four weeks.

Table 1: The 5-point Likert scale student research survey questions including means, standard deviations (SD), and number of respondents (N).

#	Survey statement	Likert Scale	Mean	SD	N	Negative (%)	Neutral (%)	Positive (%)
1	In this course, I was sufficiently challenged to improve my presentation skills	Agreement	4.73	0.44	15	0	0	100
2	Preparing and recording the video pitch provided sufficient opportunity to develop my presentation skills	Agreement	4.27	0.68	15	0	13	87
3	Preparing and conducting the literature presentation provided sufficient opportunity to develop my presentation skills	Agreement	4.53	0.5	15	0	0	100
4	To what extent do you feel your presentation skills have improved during the course?	Extent	3.73	0.77	15	0	47	53
5	The reflection assignments (incl. questions, setting a learning goal, reviewing presentation recording, peer feedback) gave me a better understanding of the level of my own presentation skills	Agreement	4.29	0.45	14	0	0	100
6	The reflection assignments made me more aware of what and how to improve my presentation skills	Agreement	4.29	0.59	14	0	7	93
7	In this course, I had plenty of opportunities and chances to practice my collaboration skills	Agreement	3.79	0.77	14	7	21	71
8	In this course, I was sufficiently challenged to improve my collaboration skills	Agreement	3.79	0.77	14	7	21	71
9	The reflection assignments (incl. questions, setting a learning goal, peer feedback) gave me a better understanding of the level of my own collaboration skills	Agreement	3.64	0.89	14	7	43	50
10	The reflection assignments made me more aware of where and how I could improve my collaboration skills	Agreement	3.79	0.67	14	7	14	79
11	To what extent do you feel your collaboration skills have improved during the course?	Extent	3.07	0.7	14	14	71	14
12	To what extent did you find the questions in the reflection assignments clear?	Level of clarity	4.07	1.03	14	14	7	79
13	This course has given me a better idea on how I can continue to improve my skills in a focused way in the future	Agreement	4.43	0.62	14	0	7	93
14	In this course I reflected more and more deeply on improving my skills than I usually do in other courses where these skills are addressed	Agreement	4.64	0.61	14	0	7	93
15	The current format in the course to encourage skill development (incl. video, peer feedback and reflection assignments), should be used again in the course next year as far as I am concerned.	Agreement	4.5	0.5	14	0	0	100

Note. The scale for each question is indicated in the second column. For example, the scale "Agreement" ranged from Totally disagree (1), disagree (2), neither disagree, nor agree (3), agree (4), to totally agree (5). The scale "Extent" ranged from Not at all (1), little (2), somewhat (3), considerable (4), to very much (5). The column "Negative" represents the percentage of responses where respondents selected any of the lower two ("1" or "2") Likert scale options (e.g., (totally) disagree), The column "Neutral" depicts the percentage of

respondents selecting the middle option in the scale (e.g., neither disagree, nor agree). Finally, the column "Positive" represents the percentage of the respondents selecting the upper "4" or "5" options of the Likert scale (e.g., (totally) agree). Note: this is an English translation of the original Dutch version of the questions used in the survey.

Table 2: The student survey open questions 16-19 with
the number of respondents for each question (N).

#	Survey question	N
16	What did you like about the design of the course in encouraging skill development (incl. learning goals, video recordings, (peer) feedback and reflection assignments)?	14
17	What do you think could be improved in the course design with respect to stimulating skill development?	11
18	What do you think about reflecting on the development of your own skills and briefly explain why.	14
19	What is the most important thing you have learned in the course in terms of skill development (for example, think of eye-openers)?	14

Note. These last questions were open questions to allow students to highlight specific details of the skill development during the course. Not all students had points of improvement to stimulate skill development, highlighting the general positive attitude of the students towards the implementation of the ALACT model for skill development. Note: this is an English translation of the original Dutch version of the questions used in the survey.

Conclusions

The current work demonstrates a successful extension of the ALACT model by implementing it in an undergraduate academic skills course to optimize both practice and reflection. The aim was to create a more structured and effective process of developing presentation and teamwork skills to support self-regulation while maintaining an acceptable workload for lecturers and students. Our results show that we were successful in achieving this goal: both students and lecturers found that the structured spiral set-up provided sufficient support for meaningful reflection and also effectively stimulated skills development. Due to this perceived usefulness, the ALACT implementation also seemed to promote student buy-in. This is a positive side effect in a student population generally not appreciating such activities. The implementation method also appears to stimulate reflection beyond simply 'looking back' (phase 2). Students frequently mentioned positive aspects of the reflection approach that related to the later ALACT phases: they reported that they were more conscious of elements needed for success (phase 3), and better able to translate these into concrete actions (phase 4) for subsequent practice opportunities (phase 5). Several points for improvement were also identified, which include ensuring minimal redundancy in reflection questions and the need to address the disbalance in the development of presenting versus teamwork skills. For example, it seems students need more support in creating actionable teamwork learning goals.

Taken together, the ALACT model can be a useful tool for promoting skills development within higher education, though steps should be taken to ensure that the implementation provides sufficient scaffolding and that the spiral nature is used. Discrete reflection moments should therefore be consistently linked to subsequent practice opportunities throughout the learning process. Moreover, lecturers planning to use this model should be careful to ensure that the balance between scaffolding and workload remains practical, both for students and lecturers (Scholten et al., 2021). Lastly, the scaffolding should be adapted to the amount of experience students have with reflecting.

In the future, these initial successes could be more thoroughly explored. Firstly, to investigate if the perceived improvements also translate to actual improvements in both reflection skills and the academic skills being taught. Secondly, application to other academic skills would

aid in further illuminating the potential of this approach. Thirdly, there is also value in corroborating the positive experiences with those in other educational settings. Lastly, this was an exploratory study which examined many facets: total course design, reflection skills, inclusion of peer feedback, and of course the academic skills themselves. More in-depth exploration of each element can therefore also contribute to our understanding of how the ALACT model can be successfully implemented within an academic skills curriculum.

Acknowledgments

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Introducing English in Preschool Education in Greece: An Overview of the EAN Project

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Abstract

Following the 21st century model of creating classrooms that respond to society's pluralingualism and multiculturalism, English as a foreign language has been introduced in numerous European countries, as well as worldwide, in numerous preschools (Baïdak et al., 2017; Alexiou, 2020). Within this scope, integrating English as a foreign language in all Greek preschools is realised as of September 2021 through the EAN project (2021-2022). The project supports teachers' work through developmentally suitable soft CLIL educational scenarios that relate to the New Preschool Curriculum (Penderi et al, 2021) in Greece. This innovation does not only reflect international practices but also advances them both in the context of early foreign language learning and in relation to teacher training and support. Teacher training addressed both to in-service EFL teachers and preschool teachers is one of the main pillars of the EAN project and the positive impact of the EAN training scheme on teachers' self-efficacy has been found statistically significant. Monitoring and supervising the introduction of the English language in preschools as well as collecting evidence from all the key stakeholders are also paramount in this process. One of the main innovations has been the effort to cultivate a culture of cooperation between the teachers, contributing to the children's formation of a positive attitude towards languages. Important parameters are also children's development of attitudes, soft skills and pedagogical values as well as the promotion of intercultural competence. The EAN Project caters for very young children's multilateral education as well as their holistic development and presents a paradigm shift in EFL and preschool educational practices.

Keywords: EAN Project, English in Preschool, Teacher Training, Educational Material

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Introduction

Globally, as well as in many European countries, the idea of introducing a foreign language in preschool education has been long realised (Alexiou, 2020; European Commission, 2014). Based on the notion of developing communication and intercultural skills, the introduction of any additional language in the early years of education prepares children for the reality of the multicultural and plurilingual 21st century (Baidak, et al., 2017; European Commission, 2014).

The past school year, an innovative educational reform has taken place in Greece; the English language has been introduced in all Greek state preschools through the 'EAN' Project, or else "Teacher Training for the Introduction of English in Preschool Education", (Code: MIS 5093563) within the context of OP "Human Resources Development, Education and Lifelong Learning 2014-2020". The EAN Project has been responsible to support the introduction of the English language in Greek state preschools across the country.

The leading institution responsible for the design, organisation and coordination of the programme is the Aristotle University of Thessaloniki (AUTH), Greece. There are two partner institutions involved, the National and Kapodistrian University of Athens (NKUA) and the Institute of Educational Policy (IEP). Therefore, an interdisciplinary team has been formed, comprising university faculty members, and special teaching staff, technical personnel, researchers, and external collaborators.

Main aims of the EAN Project

The EAN Project is realised within an innovative initiative in the context of the Greek educational system reforms, following the priorities set by the educational policy, focusing on upgrading this system at all levels of education.

Within the EAN Project, teacher training sessions have been developed and carried out, as well as methodologically and age-appropriate educational material are created in order to assist teachers in their new and unexplored task. The EAN Project also closely supported and monitored the process via collecting qualitative and quantitative data from all key stakeholders, such as English language and preschool teachers, Education Advisors and parents. Moreover, the learning outcomes of preschool children have also been investigated. Additionally, school visits have been conducted across the country and data were collected through classroom observations. In order to support and provide guidance to all those involved, and anyone who might be interested, an open-to-all website, the EAN Educational Portal has been developed. The EAN Educational Portal hosts general information about the EAN Project as well as specific information for each sub-project, along with the educational material. All data gathered during the past year concur that the introduction of the English language in the Greek preschools has been highly beneficial not only to the children, but to teachers as well, since they have gained useful knowledge which has made them more powerful educators.

The EAN Educational Portal

Based on the aims, the EAN AUTH team has created an open-to-all Educational Portal (www.ean.auth.gr), both in Greek and in English. This portal provides useful information to anyone who might be interested in the EAN Project, but also valuable guidelines to teachers

and parents involved in this educational reformation. Additionally, the EAN Educational Portal also includes information regarding the systematic monitoring process of the Project as well as the training programme regarding teachers and Education Advisors of the two specialisms.

Furthermore, the educational material is also included in the portal, along with digital tools and online resources, as well as suggested TPR classroom activities appropriate for very young learners. Moreover, relevant publications are also provided on the website. Information, study material and photographic material of the seminars and conferences held within the context of the EAN Project are also posted on the EAN Educational Portal. Since the Aristotle University of Thessaloniki has been responsible for the creation of this website, the aim is to maintain the provision of information and include up to date research related to English in preschool education and a major goal is to ensure the sustainability of the EAN Project. To this aim, a recent addition has been the activities and educational scenarios created by undergraduate and postgraduate students of the Aristotle University of Thessaloniki, School of English.

So far, the EAN Educational Portal has received 365.713 visits by 38.134 users. Most users have accessed the tabs related to the educational material, such as the scenarios and additional supportive material, and the general description of the programme. More specifically 37.000 Greek users have accessed the EAN site while other users come from the US, the Netherlands, Cyprus, Brazil, and more.

The aim of the EAN Educational Portal, which will remain open to all and will be enhanced even after the end of the funded research programme, is to support, inform and inspire anyone who might be interested in this educational reform, setting an example and hoping for future cooperation and projects carried out with other countries interested in this particular field of study.

The EAN Training Programme

As far as the training programme is concerned, this was developed in the form of an asynchronous scheme for English language and preschool teachers, along with EFL and preschool Education Advisors. The particular asynchronous training programme has been 24 hours in duration, and it was divided into 8 thematic modules. More than 18.000 EFL and preschool teachers benefited from this training programme. The training material has been developed by the EAN AUTH team and the training was realised via the Insitute of Educational Policy (IEP) platform, in the form of a MOOC training course.

In addition to this training programme, 70 Education Advisors of the two specialisms have received another 48 hours of synchronous and asynchronous training, particularly designed to support them in mentoring and guiding the EFL and preschool teachers. The main aim of this training programme has been to assist teachers in developing the necessary skills, as well as knowledge and attitudes in order to successfully integrate the activities in the English language into the preschool curriculum. The National and Kapodistrian University of Athens (NUKA) EAN team has developed the material for the Education Advisors' additional training.

The 24-hour asynchronous training programme developed by the EAN AUTH team has been evaluated by all the teachers and Education Advisors involved. Their evaluation has

underlined the necessity of this particular training scheme as well as the appropriacy of the methodology adopted. The teachers also positively commented on the interactive model adopted and evaluated the training as highly interesting and useful. Moreover, the feedback received concerning the technical issues of the training platform were also positive, as the trainees characterised the platform as easy to navigate and user-friendly. Positive evaluation has received the additional 48-hour training programme developed for the Education Advisors of the two specialisms as well.

Supporting and monitoring the EAN Project

Another aim of the EAN Project, as mentioned above, has been to offer support through systematically monitoring and supervising the implementation of English in preschools. Hence, school visits were carried out within the past academic year (2021-2022) and data was collected from 19 preschools all over Greece. More specifically, the EAN AUTH team undertook the task of visiting those schools and observing the classes during the time when the activities in English were taking place.

This process was pivotal, while the evidence collected from preschool classroom shed light on information which has been necessary and decisive for the formative assessment of the programme. More specifically, during these visits, the EAN AUTH research team was able to identify the high level of children participation during the activities in the English language as well as the great extent to which the teachers have used the EAN educational scenarios along with various techniques, methods, and materials they have incorporated. Moreover, information on the positive aspects of cooperation between the English and the preschool teacher have also been reported, supporting the value of the cooperative teaching model introduced by the EAN Project.

While visiting the preschools, albeit these were not part of any sub-project of EAN, the children's learning outcomes were also investigated. The high level of research interest on this aspect of the implementation of English in Greek state preschools has been the impetus for gathering data on children's linguistic, cognitive, cultural and socio-emotional outcomes. The data were collected by 84 preschoolers across the country, using tools which are appropriate for the particular age.

More specifically, Piclex (Alexiou, 2020) was used to measure linguistic gains and the results clearly indicate that childrens' language repertoire of preschool children was broadened. As far as the cognitive outcomes are concerned, YLAT (Alexiou, 2005) was employed. With regard to YLAT, the children did very well, particularly in some parts related to memory while children's scores on YLAT have affected their scores in Piclex highlighting the positive relationship of cognition and language. In order to investigate the socio-emotional outcomes of preschoolers, an adaptation of the Berkeley Puppet Interview protocol (Ablow et al. 1999) was used. During this testing procedure, which seemed as a game for children, the preschoolers expressed their enthusiasm for the new language (English in this case) and the activities taking place in their classroom, as well as their positive feelings related to different cultures and civilizations. As it is apparent therefore, measuring the learning outcomes of preschool children, in relation to the implementation of English in preschools highlighted the beneficial role of introducing a foreign language at this early age, taking into account the holistic development of children.

Whitin the systematic monitoring of the EAN Project, the investigation of all key stakeholders' perceptions regarding this educational reform was also important. This has been fundamental since perceptions are related to the practices implemented by teachers (OECD, 2009). The aim has been to investigate how teachers and Education Advisors of the two specialisms as well as parents have experienced the horizontal implementation of English in preschool education the past school year. Particularly, data were collected by more than 13.000 stakeholders. Generally, all participants exhibited positive perceptions regarding English in preschool, and the challenges (mainly practical issues) some of the participants faced did not seem to discourage them. The specific research design enabled the EAN team to monitor the progress of the programme and the findings have contributed significantly to the formative assessment of the Project. Moreover, the particular findings were taken into account in later stages of the EAN Project, making sure that all stakeholders were able to receive the necessary support and guidance during this educational innovation.

Besides the quantitative data collected by the key stakeholders, a series of focus group interviews have been conducted to gather more insightful information. More specifically, 18 focus groups were created and the participants were teachers of the two specialisms, Education Advisors and parents whose children were attending preschool. During these hourly interviews, the participants focused on the benefits of the introduction of the English language in preschool, as these have been apparent in children, as well as themselves as teachers. They also mentioned the great amount of support and guidance they have received by both the training session and the educational material hosted on the EAN Educational Portal. Any challenges they have faced had to do with lack of equipment, such as computers and projectors and administrative aspects, such as the preschool schedule. More importantly, they have also acknowledged and discussed the inspiring cooperation developed between English language and preschool teachers, which many times expanded from the classroom environment to a personal level.

The EAN Educational Scenarios

Another main aim of the EAN Project has been to provide teachers with developmentally and methodologically appropriate material for the implementation of English in preschools. In this context, the EAN Educational Scenarios were developed by the EAN AUTH team. The EAN scenarios reflect the Content and Language Integrated Learning (CLIL) approach, since it is supported to be the most appropriate for such young learners. The scenarios also adopt the interdisciplinary approach and are in line with the New Preschool Curriculum (2021) in Greece. Most importantly however, the EAN Educational Scenarios take into consideration the developmental characteristics of preschool aged children, following the appropriate pedagogical practices and incorporating relevant and most updated foreign language methodologies.

The particular material is indicative, and they are developed in order not to provide teachers with ready-made recipes but to inspire them on creating their own scenarios and activities instead. Additionally, the scenarios are flexible, in the sense that teachers can decide, based on the dynamics of the classroom and previous knowledge of the children, which and how many activities can actually be implemented in their classroom. Most importantly though, the scenarios create a meaningful learning framework by ensuring purposeful learning in order for the activities in English not to function as a separate subject but to be naturally incorporated in the preschool curriculum. This has been achieved through the use of an

English-speaking puppet, Kiki the koala in this case, that children can relate to and find a reason to communicate in another language.

There are more than 30 EAN Educational Scenarios which are divided into five thematic categories (Myself and others, Autumn, Winter, Spring, and Summer), following the structure of the thematic units employed in preschools. These educational scenarios contain more than 150 activities, and each scenario is complemented with multimodal material, such as flashcards, songs, and games. To be precise, 15 songs, 19 digital games and 185 flashcards were created in order to accompany the scenarios. Generally, short poems, stories, arts and crafts, realia, board games and puzzles are incorporated in the learning process. All these are material that are related to playful learning which ensures and enhances the holistic development of preschoolers. Special emphasis is placed on the development of oral skills through multisensory activities while it is clearly stated that children are expected to produce written language at this stage.

Besides the scenarios and the accompanying multimodal material, a bank of supportive material has also been developed. These include ideas for activities that can be incorporated within thematic categories, as presented in the "EAN Treasure Chest" along with suggestions of stories and songs that also fit into each thematic category. In addition to these, a bank of digital resources and online tools (websites) as well as TPR activities and games to be used in the preschool classroom are also available to teachers. The educational materials developed are available on the EAN site (https://ean.auth.gr/en/ean-educational-material/).

The educational material developed by the EAN AUTH team have been evaluated in order to make any necessary changes and adaptations that would better support and assist teachers in their work. The vast majority of the evaluations collected point out that the supportive material of the scenarios (such as songs, flashcards and digital games) are appropriate for the particular age (91%) and that the scenarios are fully informative (100%). Moreover, the scenarios were praised for their innovation (73%), the cooperative teaching model between the teachers of the two specialisms (77%) and the clarity of the objectives set (95%). The teachers who have evaluated the educational material also recognised the appropriacy of the methodology followed (95%) and highlighted that the EAN scenarios are in line with the New Preschool Curriculum (100%). What the teachers unanimously pointed out was the need for more educational scenarios that they can draw from which was realized by the end of the project.

Kiki the Koala: The puppet-mascot

As previously mentioned, in order for the English language to be introduced in Greek preschools in an effective, playful, natural and age-appropriate way, a mascot was used. Research has shown that mascots and puppets when used as educational tools offer multiple benefits. Through their colourful appearance and engaging personalities, they establish a positive, stress-free atmosphere in the classroom, resulting in better communication opportunities and enhanced creativity (Kröger & Nupponen, 2019). At the same time, they can foster acceptance and understanding, as well as a mentality of cooperation among learners, since the latter are offered the opportunity to adopt new perspectives as they play and engage with the puppet (Kröger & Nupponen, 2019).

In this case, Kiki the koala (see Figure 1) became the puppet-mascot of the EAN project responsible for introducing preschool children to the English language. Kiki is a cute koala

from Australia who speaks only English and becomes the link connecting children's in-class experiences with the outside world and the ways in which this new language can be used. The choice of a koala as a mascot was not coincidental. This particular exotic animal has a direct connection to Australia, an English-speaking country with approximately one million Greek expatriates. Therefore, it is likely that many children have relatives there and thus connections are made. By using this particular mascot, which refers to another culture, a need is created and there is a purpose in the communication between the mascot and the children.

More specifically, with the help of the English teacher who introduces children to Kiki, the children are encouraged to communicate with her and establish rapport using the target culture as much as possible. At the same time, Kiki acts as a representative and an agent of the target culture and offers children the opportunity to learn about foreign customs and traditions, compare them to their own, and thus develop a multicultural perspective towards learning in general and foreign language education in specific.

During the activities in the English language, Kiki is not presented as a prop but rather as an integral part of the learning experience, being responsible to introduce each new thematic area, topic, or activity for the children to engage with using the English language. The children are introduced to her on the very first day, while the English teachers are given a detailed indicative background of Kiki's family, friends, her hobbies, preferences, and pet peeves. As the school year progresses and the preschool children become more and more familiar not only with the new language but also with the new teacher, the latter can choose the extent to which Kiki's presence is needed, thus adapting their activities accordingly.

Finally, as it is the case with all aspects of the EAN project, the opinions and feedback of those directly involved in and affected by the reform were highly valued. In this case, the children were the ones who were encouraged to choose the best Kiki among a total of 9 images given to them (see Figure 2). A number of children from different schools decided on the most beautiful of the koalas, the one that they considered to have the most attractive colours and, finally, the one that they would like to be friends with in order for the "winner" Kiki to gain the title of the mascot of the project.
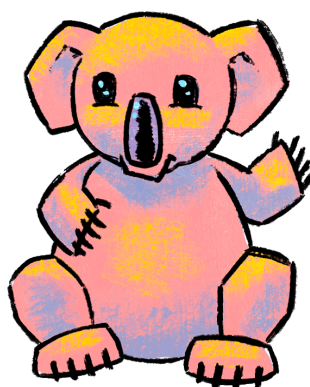
Figure 1: Kiki the Koala

Figure 2: Deciding on the best version of"Kiki the Koala"

The EAN model of teacher cooperation

One of the main innovations introduced by the EAN Project has been the teaching model adopted. For this initiative teachers of the two specialisms, namely the English language and the preschool teachers, have been brought together and were encouraged to cooperate during all stages of the learning process. The close cooperation between teachers while planning, conducting, and assessing the implementation of the activities in English is crucial for the successful introduction of the English language in preschool education. Along with the cooperation between teachers, the frequent communication and cooperation with the parents/guardians of preschool children is also important, in order to ensure that they can support children at home and enhance their experience with the new language.

Conclusion

The introduction of the English language in preschool education in Greece has been realised through the EAN Project which is responsible for organizing, supporting and monitoring this innovative educational reform. The interdisciplinary EAN team has catered for the training of teachers and Education Advisors as well as the rest of the key stakeholders, such as parents and children. Through the specifically designed training sessions, seminars and conferences held, teachers were able to gain all the necessary knowledge in order to undertake this innovative task. The educational material developed was of the utmost importance, as it provided support and inspiration to teachers involved in the learning process. The data collected throughout this year underline the value and importance of introducing a foreign language in preschool education, and benefits have been found for both teachers and children. Indeed, as it has been found during the school visits carried out, there are several learning gains apparent in children's linguistic, cognitive and socio-emotional learning outcomes.

The EAN Project has systematically and carefully taken all the necessary steps in order to make sure that the English language in preschool has a theoretically and methodologically appropriate basis that ensures the developmental and pedagogical appropriacy in preschool education. The aim has always been to support the important role of preschool education and therefore to enhance the qualitative learning outcomes related to children's holistic development. Therefore, the fact that the philosophy of the EAN Project is in line with the New Preschool Curriculum (Penderi et al, 2021) is of paramount importance for the sustainability and continuity of this educational reform.

The material developed by the EAN team has been translated and adapted from Greek to English in order to respond to the needs of the global educational community, setting the steppingstone for this educational innovation to be shared universally through the EAN Educational Portal. The ultimate goal of the EAN Project is to function as an example and landmark for foreign language learning in early years.

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Creating Design Guideline; Online Platform to Encourage Lifelong Learning Among Thai Digital Natives

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Abstract

A National Scheme of Thailand Education for 2017-2039 according to the Office of the Education Council of Thailand, provides a framework to follow in the development of education. One of the important considerations is to support lifelong learning for Thais with high quality and standardization of education at all levels. One of the challenges for the educational problem in Thailand in the 21st century is how to encourage Thai digital natives (14-25-year-old) to utilize technology for self-access, out-of-class learning style. Therefore, the purpose of this study is to identify an appropriate design guideline for an online platform that promotes lifelong learning among Thai digital natives. The study methodology covers the analysis of literature reviews including best practices in design and related fields and responses from the distributed questionnaire surveys, which leads to the creation of an appropriate design guideline for an online platform. As a result, the guideline addresses four important elements; 1) Responsive design, 2) Multiple Social Media, 3) Infographic and/or Infotainment, and 4) Modern and/or Up-to-Date Design. The identified design guideline can be applied creatively by designers and/or educators in a varied outside-classroom online learning resources, such as, online museums, art galleries, local communities, and other areas with different learning environments. Moreover, the design guideline is considered to enhance lifelong learning that motivates achievement in learning experiences among Thai digital natives.

Keywords: Thai Digital Natives, Online Platform, Responsive Website, Lifelong Learning, Visual Communication Design

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Introduction

The transformation of societies, economies, and technology environment in the world has become a critical challenge for people. The educational system should support and respond to develop skills throughout life. Continual learning could help people to adapt skills to any changes in society and improve their quality of life. Both Formal and nonformal learning styles focus on the objectives of learning and delivering contents to boost capability.

From this concern, a key to the learning journey to integrate effective development is to encourage a lifelong learning mindset. Lifelong learning engages in learning outside the formal system and creates a learning experience constantly for sustainable development.

A National Scheme of Thailand Education for 2017-2039, according to the Office of the Education Council of Thailand, considers the quality of national education as the focus mechanism for national economic and social development. The lifelong learning strategy aims to improve the learning experience and use the benefits of digital technology for all ages to access educational resources.

Younger generations engage in the development and response to the progress of the country's future. The new generation spends most of their time in a digital lifestyle and becomes digital natives. Digital natives are fluent in digital technology, to utilize digital content for self-access learning resources through online platforms. As the importance of the study, a lifelong learning behavior for digital natives could expand creativity, innovation, and imagination to contribute improvement of better lives and the development of society.

In Thailand, the Ministry of Education, educational institutions, and other public educational services support a lifelong learning concept to encourage Thai digital natives through online platforms such as websites, social media, and multimedia platforms. However, many self-access learning services have encountered low engagement in reaching their proficient knowledge. In the research analysis, the issue could be the lacking of connection between a formal educational system and outside classroom learning resources. Another significant factor is unfocused on creating attractive media, concerned with content development, an exciting communication method, and a modern design of multimedia for Thai digital natives appropriately.

The research gathering information recently reflected that many public educational services in Thailand are accelerating development to provide an engaging online platform. Most of them provide social networking media, official websites, or active online platforms. Nevertheless, the engagement of Thai digital natives remains below expectations.

In addition, the researcher desired to create an attractive platform prototype to enhance lifelong learning for Thai digital natives and provided a result of the focus group interview at the end of this study.

Research Objectives

1. To identify a design guideline focusing on the identified elements to encourage lifelong learning among Thai digital natives
2. To create a prototype of an online platform for educational providers or knowledge services units to achieve a professional communication design on their platforms

Methodology

The research used mixed-method quantitative and qualitative research and divided it into two processes.

Process one is to collect the survey result from the Thai digital native population in Thailand. There are 12,137,820 Thai digital natives aged 14 to 25 in Thailand (National Statistical Office of Thailand, 2021). The research study uses the formula of Taro Yamane with a 95% of confidence level to calculate a reliable sample size determination of a representative population (Yamane, 1967). The numbers of the sample are at least 399 Thai digital native responses. The survey obtained 433 Thai digital native responses from six regions of Thailand and chose a voluntary sampling technique. This process focused on three parts. Part one is to collect general demographic information of respondents. Part two is to certify the number of respondents who use digital tools and understand their media lifestyle. In the final part, the survey considers how they prefer beneficial informal learning styles as a basis of everyday lifestyle.

Process two is to analyze research papers and best practices in communication design for a suitable platform in a related field of educational content appealing to digital natives. This process aims to review and analyze the research papers and the best practices in the design elements on an appropriate platform and see how to bridge the knowledge services of the educational provider to Thai digital natives. The finding could be considered a design guideline to apply for the study.

Survey Data Analysis Process

The survey questionnaire consists of three parts. Part one, the questions were general demographic information. Part two collected a behavior/experience using technology for their media lifestyle. Part three, the questions focused on an interest in using self-access learning resources outside the classroom of Thai digital natives.

Part 1: General Demographic Information

Variables	Values	Numbers	Percent
Gender	Male	154	35.6
	Female	273	63
	Not Specified	6	1.4
Age	14 – 17	40	9.3
	18 – 21	137	58.9
	22 – 25	254	31.8
Region	Central	178	41.1
	Eastern	8	1.8
	Northeastern	92	21.2
	Northern	64	14.8
	Western	3	0.8
	Southern	88	20.3

Table 1: The Table Shows General Demographic Information of 433 Respondents

Part 2: Behavior/Experience Using Technology and Media Lifestyle

Behavior/Experience Using Technology	Values	Numbers	Percent
Experience Using Computer/ Online media/ Social media and/or Browsing Websites and Mobile/ Tablet Applications	< 1 Year	3	0.7
	1 – 3 Years	19	4.4
	4 – 6 Years	71	16.4
	7 – 9 Years	156	36.1
	> 10 Years	183	42.4
Daily Time Spent for Using Computer/ Online Media	< 1 hr.	4	0.9
	1 – 2 hrs.	20	4.6
	3 – 4 hrs.	83	19.2
	5 – 6 hrs.	125	28.9
	7 – 8 hrs.	83	19.2
	> 8 hrs.	118	27.3
Multiple Response Question	**Multiple-Selection**	**Numbers**	**Percent**
Electronic Device Connecting the Internet/ Online Media for Regularly	Smartphone	410	97.7
	Tablet	77	17.8
	Notebook Computer	147	33.9
	Desktop Computer	69	15.9
	Smart TV	35	8.1

Table 2: The Table Shows Behavior/Experience Using Technology and Media Lifestyle of Respondents

The responses showed that 433 Thai digital natives have their own online devices of 99.5%, and 46.5% spend more than 7 hours per day expose to digital online content. The replies of 42.4% of 183 respondents have had an online experience for more than ten years on several platforms, such as social media, websites, online games, and applications. The significant responses indicated that Thai digital natives acquaint with an online lifestyle and connect to digital content frequently.

Part 3: The Interest in Using self-Access Learning Resources Outside-Classroom

This part of the question provides a five-point Likert scale using a method of summated rating, ranging from 'Strongly agree' (5) to 'Strongly disagree' (1) to interpretation and analyze the data (Likert, 1932).

Beneficial of Using Outside-Classroom Learning Resources	Mean	S.D.
To improve a better learning atmosphere.	4.23	0.81
To stimulate the interest of the learners.	4.21	0.81
To broaden perspective of learning	4.34	0.80
To sense and learn from real experiences	4.37	0.80
To enhance development in learning	4.32	0.76

Table 3: Five-Point Scale Measures Agreement of Interest in Using Self-Access
Learning Resources Outside-Classroom of Respondents

The survey data from Table 3 indicated that respondents were interested in using outside-classroom learning resources in all aspects. Particularly in the value of learning from real experiences, the survey data reflects the characteristics of being ready to allow themselves to learn from outside classroom resources. This point is related to Tomas Chamorro-Premuzic, referred that the curiosity quotient (CQ) leads to higher levels of intellectual investment and knowledge acquisition over time, especially in formal domains of education, such as science and art (Tomas Chamorro-Premuzic, 2014). Likewise, cognitive neuroscience expands fun in a learning experience and the ability to memorize the content since emotions affect feelings and learning (Regate and Geoffrey Caine, 1990). Moreover, this performance will lead to limitless knowledge expansion for the learners.

Educational providers can offer positive and attractive media to approach their digital lifestyle behavior. Creating an online platform is an effective medium for communicating and motivating them to embrace and engage in visual creative knowledge content. The observation of online media determined that many educational providers in Thailand are inapplicable to Thai digital natives. The valuable knowledge should improve visuals and well-organized structure using design communication.

In the following process, the study focuses on digital communication ways and best practices on online platforms to appeal to Thai digital natives.

Analysis of Research Papers and Best Practices Process

Articles with consistent content related to the study were analyzed and synthesized to create a design guideline for Thai digital natives. Based on the article in the journal of advertising research revealed that digital natives are intrigued with interactive digital technology and expect functional interactivity on the digital information product (Kirk et al., 2015). In the educational environment, Riegel and Mete (2017) indicated that digital natives are comfortable using digital multimedia resources to get most of the learning in the classroom. Besides, the integration of technology into everyday life impacts the delivery of educational expectations (Reigel & Mete, 2017).

In Thailand, the research about modern learning styles for digital natives, Thianthai and Tamdee (2022) informed that digital technology has become a significant factor in self-directed learning and affects educational efficiency. The study on innovative media for Thai digital natives to expand their knowledge about digital citizenship found that a responsive

website, infotainment, motion graphics, and short-form video program style are highly appropriate for communication (Dhamanitayakul, 2019).

Process two is to develop data analysis of best practices on a responsive website platform. The study uses a content analysis form to evaluate the content and apply a procedure of The IOC Index by three experts to measure the reliability of the research instrument. There are two parts to the content analysis form; part 1) usability and functionality analysis and part 2) User Interface design and visual elements analysis. The responsive website platform set criteria to nominate the awards to match two of three top international web competitions established for more than ten years includes of; Webbyawards.com, Awwwards.com, and Thefwa.com.

In this research, the researcher considered a museum website responsive as related educational content for study. There are 234 websites found on Webbyawards.com, 42 websites found on Awwwards.com, and 297 websites found on Thefwa.com. The selection of 25 responsive websites matched two of three in the top international web competitions and met the criteria analyzed using the best practices analysis form. The researcher studied those 25 best practice websites in two main elements as the followings:
1) Usability and Architectural Structure; content & feature, above the fold & key feature, functionality, efficiency, front end framework, consistency, grid structure, and transitional techniques.
2) User Interface Design; visual elements, graphic design directions, typography, image/photography, design principles, color theory, and communication techniques.

Results

The key impacts of creating a design guideline are high value and engagement. This finding leads to enhance lifelong learning for Thai digital natives and can define into four elements; 1) Responsive design, 2) Multiple Social Media, 3) Infographic or Infotainment, and 4) Modern or Up-to-Date Design.
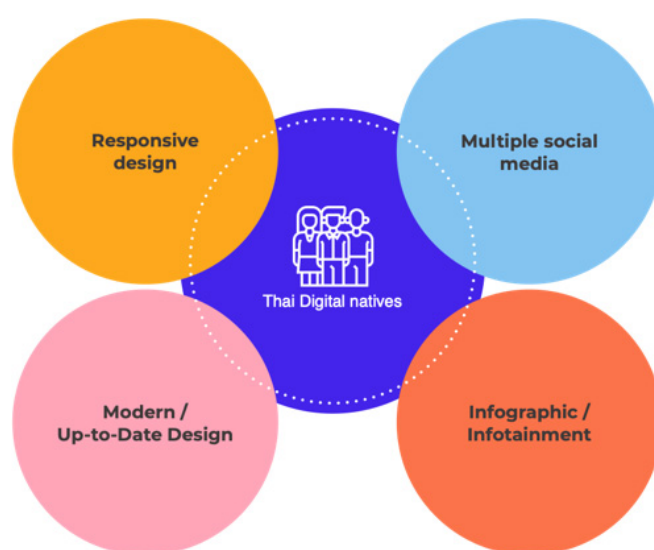

Figure 1: Four Elements to Creating a Design Guideline
Online Platform for Thai Digital Natives

Applying Result to Online Platform

As a result of the study, the design guideline was applied to an online platform to verify the result. The researcher desired a responsive website prototype for The National Aviation Museum of the Royal Thai Airforce. The museum was established in 1952 to collect, preserve and restore different airplanes and other aviation equipment. The national museum represents strength with high management potential and maintains an ability to develop a communication platform for the public. This museum ranked second place among the top ten aviation museums in Asia. (aviationnews.eu, 2019) However, a talk with the museum director reported that our free entry museum is a challenge in lower visiting of Thai younger generations. Most recent visitors have come from China, ASEAN, and western countries.

One of the influential factors for an impactful medium is the appropriate media for the target audience. The current website of the museum provides general information for visitors. Nevertheless, the website design can develop using the design guideline to enhance lifelong learning. The prototype started with the design brief using the design thinking process. Next, gathering all information and determining the vision/goal of the museum to analyze a user experience persona and to re-structure its website flow.
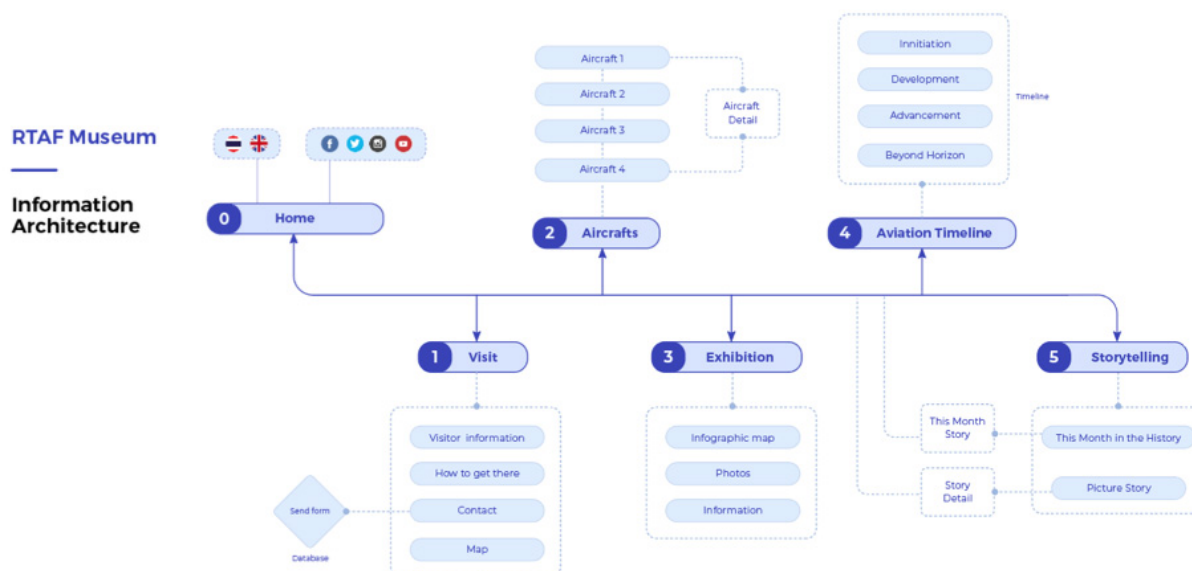

Figure 2: Re-Design Structure of Website Flow

The website flow in Figure 2 has been re-structure containing five main menus considered in order by target group behavior for engaging and preferable information. Then, develop a concept design, decide how to convey a message, and deliver the mood and tone of the overall look under the museum corporate identity.

Figure 3: Key Words, Color Scheme, Typeface, and Mood & Tone for the concept
"Dare to Dream"

The researcher applied the design guideline from the finding and created three design
directions for the Home page under the concept of, Dare to Dream.

Figure 4: The Prototype of Online Platform for Museum to Encourage Lifelong Learning
among Thai Digital Natives

The prototype responsive website represents four main elements; responsive design, multiple social media networks, modern style, and adding more infographics on the icon kit. Another concerning design development is to create micro-animation and transition techniques, using a parallax style to intrigue users on all main pages. Lastly, the online platform may offer users by including an AR interactive activity from an online platform to explore onsite visiting.
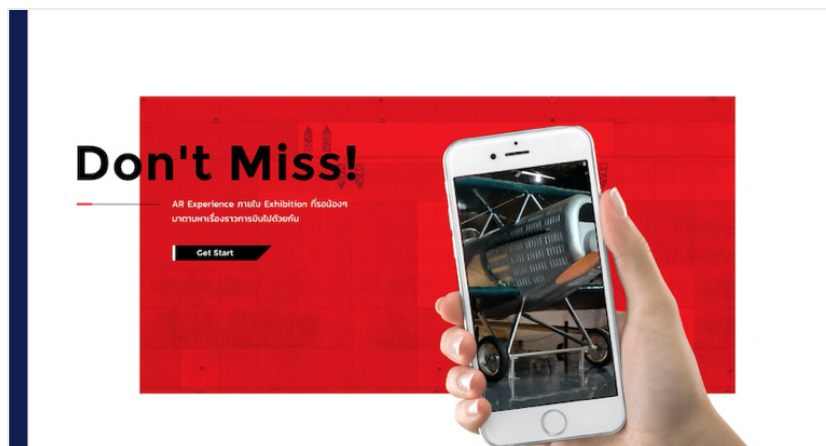
Figure 5: Sample of Layout Design for AR Activity on Home Page
of the Responsive Website

Figure 6: Homepage of a Current Website (Left) and Re-Design Prototype Website (Right)

Verifying Website Responsive Prototype

The prototype was introduced to fifteen Thai digital natives to interact with a website platform as a focus group discussion. They reflected that the new website was attractive and enjoyable to interact with micro animation on the icons. The user interface design is up-to-date on the trends and enhances engaging interaction. This prototype website encourages them to visit the museum and expect to join activities in the future.

Figure 7: QR code For the Access of the Responsive Website Prototype

Conclusions

The result of creating design guidelines for online platforms to encourage lifelong learning among Thai digital natives performed an improvement in an online platform. The significant finding of the design guideline can captivate self-access learning and bridge knowledge from the educational provider to Thai digital natives. This approach facilitates the target audience to become lifelong learners for their entire life. Additionally, the educational provider adapting this design guideline could benefit from updating their communication platform to appeal to young generation users. The culture of learning experience can widely develop and expand to social communication through the online platform.

Suggestions

For apply the design guideline
1. To develop the design guideline for the online platform, the creator requires responsive website knowledge, visual communication background, or related experience skills.
2. The online platform requires a maintenance system to remains all functions and features. The provider should monitor errors and check difficulties regularly.
3. An innovative online platform expresses creative content with attractive interaction or activity through visual elements.

For a further study
1. Research on the readiness of educational providers should conduct to study the development of the online platform to enhance learning resources for lifelong learners.
2. Research on emerging technology can renew existing media and improve the quality of learning experiences.

Acknowledgments

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Parenting and Self Resilience in Dayak Youth Students

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Abstract
Resilience is a basic psychological need that is developed through parenting. Self-resilience is important for youth student to face challenges in education. In Dayak culture in Central Kalimantan, Indonesia, women usually carry the double role of being a housekeeper as well as breadwinner. Women in the family has a significant position in fulfilling the needs of parenting and education. The study aims to find the correlation of mother's parenting to Dayak youth students' resilience. This research was conducted on 350 Dayak youth students aged 15-24 years in Central Kalimantan. The measuring instruments are Parental Acceptance-Rejection Questionnaire (PARQ) and Brief Resilience Scale. The Linear Regression with stepwise method was applied to analyze the correlation of four domains of parenting which include warmth/acceptance, hostility/aggression, indifference/neglect, and undifferentiated rejection. The results showed that rejection and neglect in the parenting process had no correlation on the development of self-resilience of youth. Meanwhile, aggressiveness/ hostility has negative correlation to self-resilience with a point of -0.301, meaning that the lower perception of hostile parenting, the higher self-resilience. In addition, the warmth or acceptance aspect shows a positive effect on resilience simultaneously with the hostility/ aggressive parenting aspect, which are hostility/aggression values of -0.219 and warm/acceptance values of 0.158. However, mean of resilience score on Dayak youth students is just around 3.38, it means the self-resilience is average. The outcome of this study to promote the importance of collaboration between families and academics in increasing the resilience of Dayak students.

Keywords: Parenting, Self-Resilience, Dayak, Youth, Students

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Introduction

Youth is a term used to describe the population aged 15-24 years (WHO, 1981). At this time the individual goes through a transition from adolescence to early adulthood and begins to learn to take full responsibility for their self. Young people will face an important preparation period, in determining one's career and success to become an independent individual in adulthood. Many studies have shown that late adolescence to early adulthood has an important role in the stability of life in the future, such as the development of self-control in adolescence influences love and work outcomes in adulthood (Allemand, Job, & Mroczek, 2019). How adolescents assess the future also has a relationship with their behavior in the future (Finlay, 2015).

In fact, in youth individuals recognize various problems that need to be faced to lead to maturity. Where the vulnerability to the risk of mental health problems is increasing. The World Health Organization (WHO) explains that mental health conditions have contributed 16% of the burden of disease and injury in people aged 10-19 years globally (WHO, 2021). Mental health outcomes are determined by a variety of factors. Factors that contribute to stress in adolescence include parents' socioeconomic status, financial conditions, to academic life (Roy K., Kamath V.G., & Kamath A., 2015). In addition, living conditions surrounded by societal stigma, discrimination or exclusion, lack of access to quality support and services also affect adolescent mental health. Stress in adolescents can be experienced due to other problems such as stress in good relationships including romantic relationships, friendships or parent-child relationships). This makes the individual must have a personal mechanism as well as sufficient social support to help him deal with the stress.

In Indonesia, the age of youth is the age when someone is undergoing high school education and starting college. Considering that education is a person's path in work, of course there is high pressure in carrying out tasks both as students and students. A study shows that the academic field is a source of stress for youth students which can affect their mental health (Hosseinkhani et al, 2020). Academic stress is caused by various factors, such as personal inadequacy, fear of failure, interpersonal difficulties with teachers, teacher pupil relationships and inadequate study facilities were further analyzed and gender differences were also obtained (Reddy, Menon, & Thattil, 2018).

Apart from academic problems, there are other sources of stress that are often faced by students in educational institutions in Indonesia. Several problems often arise, from bullying, fights, to sexual violence that often occurs among youth students in school and campus environments, which can also be a cause of stress. The Indonesian Child Protection Commission (KPAI) released data that throughout 2022, there have been at least 226 cases of physical and psychological violence, including bullying, the number of which continues to increase to date (BBC News Indonesia, 22/07/2022). Apart from that, there are also interpersonal related problems, family related problems, school related problems, self related problems, economy related problems, nature and unpredictable related problems, media and technology related problems (Liem et al, 2015).

In facing the challenges of youth, skills are needed to be strong in dealing with various sources of stress, so that teenagers can continue their education smoothly. One important aspect of dealing with stress in individuals is resilience. Resilience is a basic psychological need and important for youth students to face challenges in education and tough life challenges/pressures from the environment. Resilience is the ability to adapt successfully

despite challenging or threatening situations (Wright & Masten, 2015). A process of adaptation resulting from difficult or challenging life experiences, mainly through mental, emotional and behavioral flexibility, both external and internal adjustment (APA Dictionary of Psychology, VandenBos, 2015).

One of the factors forming resilience is through parenting in the family. Parents who have authoritative care have a positive correlation with adolescent resilience (Khosla et al, 2021). In the youth age range, where a person is still in the process of adapting to changes in the meaning of parenting roles and encouragement to become autonomous. At this age a person is able to make decisions independently and be responsible for decisions. Even though in this phase a person places more emphasis on the attachment of friends, basically the long process of parenting they receive certainly influences how they respond to problems at a young age.

Specifically, resilience can be built through parenting which includes Caring relationships, High expectation messages, Opportunities for participation and contribution (Bernard, 2004). Locke developed the theory "Tabula Rasa", also known as "Blank Slate" where he emphasized that respectful, loving parenting was the leading factor in inspiring offspring to replicate good behavior (1689) insistence that children should be provided with the best setting to allow them to explore their world freely and to establish mental processing was central to the increase in cultural attention to child development. All the leading factors can only be obtained through parenting.

Developing one's resilience in parenting is needed by someone throughout their lifetime. In Indonesia, a person tends to be considered an adult when he has his own income, and when he is married. In this case, it means that even though someone has passed the age of 17, they are still continuing their education and are paid for by their parents, so the parenting role is still important for them. On the other hand, parenting is an early milestone in individual stimulation. This means that the pattern of parenting that was instilled years before will affect how a person's attitude in dealing with problems in the present. Several studies have stated that there is an influence between upbringing and mental problems faced by adolescents. Parenting affects the self-esteem of adolescents with psychological inflexibility and both of these ultimately affect adolescent mental health (Peng et al, 2021).

Even though someone is already in the phase towards adulthood, it is still important to know how the portion of parenting involvement by parents is currently perceived. In the parenting process, there are four types of parenting, namely permissive, authoritarian, autotitative, and ignoring. There are important elements in the parenting process, such as acceptance and rejection. In acceptance, the behavior shown is related to the warmth, affection, care, nurturance, support, or simply love (i.e., parental acceptance). Meanwhile, parental rejection may be expressed in any combination of four ways, namely in the form of coldness/lack of affection (the opposite of warmth and affection), hostility/aggression, indifference/neglect, and in "undifferentiated rejection." (Rohner, 2016).

Between the roles of the two parents, in Central Kalimantan, the parenting role is mostly borne by the mother (Elbaar, 2019J). In Dayak[1] culture in Central Kalimantan, each individual in the family, both husband and wife, has their own authority in accordance with the social institutions that exist and apply in society. Gender equality has been owned by the Dayak tribe from the start. In history, Dayak women can engage in war even though they

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[1] Dayak is a tribe who live in Kalimantan

have tenderness. Both Dayak men and women have a brave and unyielding warrior spirit, this is expressed in their life motto Isen Mulang[2]. The Isen Mulang philosophy is taught to children through parenting from generation to generation where the meaning is Never give up which includes optimism, belief, and persistence. Even though a woman has access to actualization in the social sphere, more parenting responsibilities are borne by the mother.

Based on this, one's perception of maternal care in Dayak youth is important because of it's more dominant role. The hypothesis in this study is that there is an influence of parental (mother) parenting roles, related to the development of youth resilience in dealing with the stress they face in undergoing education. The implication of this finding is to encourage the nurturing element which is important in developing resilience in youth students.

Method and Instrument

This study is a quantitative study with data collection through a scale. The scale used to measure maternal care is the Parental Acceptance-Rejection Questionnaire (PARQ) from Rohner. This measuring instrument consists of 24 statements that describe four aspects of parenting, namely Warm/Affection, Hostility/Aggression, Indifference/Neglect, and Undifferentiated Rejection. This scale is a Likert scale which consists of 4 answer choices namely "always", "often", "rarely", and "never". Meanwhile to measure resilience using the Brief Resilience Scale (Smith et al, 2008) which consists of 5 item statement that describes a person's resilience. This scale is also a Likert Scale which consists of five answer choices, namely "strongly disagree", "disagree", "neutral", "agree", and "strongly agree".

The scale is distributed online to Dayak youth who are currently studying at high school or university in the age range of 15-24 years in Central Kalimantan. The number of samples used in this study were 350 people, consisting of 77 men and 237 women. The results of data collection were analyzed using stepwise regression by looking for the relationship between parenting aspects and resilience. This is to see the important elements in parenting in increasing the resilience of adolescents. This research is expected to provide information to parents and professionals to encourage resilience in young people.

Results and Discussion

Tabel 1. Average Parenting and Self-Resilience Score

Scale	Average score	Category
Parenting		
Warm/Affection	2.98	High
Hostility/Aggression	1.39	Low
Indifference/Neglect	1.78	Average
Undifferentiated Rejection	0.80	Low
Self Resilience	3.14	Average

From the data collection, it was found that the parenting style (mother) of Dayak students showed high warmth/affection. Mother is perceived as someone who gives unconditional love. On the other hand, mothers are not perceived as parents who do not love them, this is shown by the undifferentiated rejection score which shows a low score. Mothers are also not perceived as angry or hostile because the average score of hostility/aggression on parenting is

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[2] Isen Mulang is a Dayak's Philosophy means never give up

low. Meanwhile, parents (mothers) showed disinterested or inattentive behavior towards them with an average score.

From this description it is known that parents are perceived as someone who is full of affection and accepts their children, but on the other hand parents also show a lack of attention to their children. This shows that parents are perceived as someone who is full of acceptance, but the lack of attention can be caused by the dual role that the mother has. However, this lack of attention has no correlation with self-resilience in general. The young Dayak students, on average, have moderate resilience and in fact this has a significant negative correlation with aggressiveness/hostility with a value of -0.301. Meanwhile self resilience is also significantly related to aspects of Warm/Affection when analyzed simultaneously with aggressiveness/hostility with a value of -0.219 for Aggression/hostility and 0.158 for warmth/affection.

Tabel 2. Correlation between parenting and self-resilience

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.594	.132		27.145	.000
	AggressionHostility	-.301	.090	-.176	-3.343	.001
2	(Constant)	3.010	.306		9.828	.000
	AggressionHostility	-.219	.098	-.128	-2.240	.026
	Warmth	.158	.075	.121	2.111	.035

a. Dependent Variable: Self Resilience

Based on existing research, it also shows an authoritative parenting style and shows acceptance of children related to child resilience (Mohammadi et al, 2018). Authoritative parenting itself is a parenting style that shows high control and high responsiveness (Baumrind, 1991). In this case, warmth/affection is a form of responsiveness from parents. Meanwhile, the control that should be applied is one that is not hostile/aggressive in nature. If control is given in this way, it will actually give a negative correlation to the self-reliance of Dayak youth students. On the other hand, neglect and rejection from parents have no correlation with the development of resilience in Dayak youth students. This is because in their teens, peer social acceptance is far more important for them. At this age self resilience is also influenced by the social support of peers (Al Qu'ana & Hanurawan, 2022). Considering that these Dayak youth students are at the age towards independence, so even though their parents (mothers) show enough neglect, this actually provides space for the process of developing their independence so that it does not have an effect on self-resilience in general.

Conclusions

In general, Dayak youth students are raised by their parents with high acceptance of them. On the other hand, their self resilience develops at an average level. Based on the results of this research, it is known that acceptance is an important aspect in encouraging the resilience of young Dayak students. Meanwhile, aggressiveness/hostility parenting has a negative relationship with the self-reliance of Dayak youth student. To increase self-resilience, a low level of aggressiveness/hostility is needed in the parenting process. The other two aspects of

parenting, namely Indifference/Neglect and Undifferentiated Rejection, do not show a correlation with the self-resilience of Dayak student youth.

The Implications

This research shows that it is important to have collaboration between families and academics in increasing the resilience of Dayak students. In addition to caring relationships, there are two other aspects to optimize resilience, namely Caring relationships, High expectation messages and Opportunities for participation and contribution (Bernard, 2004). Therefore this needs to be a concern in increasing resilience. In Indonesia, collaborative engagement between parents and education is still lacking. Therefore, we need a program in schools that involves parenting roles.

This research also shows the urgency of further research to find out the causes of resilience in Dayak adolescents who are average (neither high nor low). The results of this study illustrate that children's perceptions of good parenting of Dayak mothers include giving warm affection, no violence, seeing harmonious relationships, no fights, but their resilience is only average.

Further questions that are important for discussion include whether perceptions of high-acceptance parenting show only average resilience. Referring to the opinion of Benard (2004), there are three things that can be provided by the environment to increase one's resilience. First, Caring relationship which is well perceived by young students in this study. While other aspects which include High expectation messages which are clear, positive, and centered expectations for someone who gives a challenge to make someone what they want, need to be studied or investigated further. In addition, Opportunities for participation and contribution which include providing opportunities to practice problem solving and decision making skills in children are also aspects that are not examined.

The implications of this research are at the same time a challenge for parents and educators to increase resilience in adolescent students. On the other hand, it is also necessary to consider what kind of parenting style needs to be promoted to parents to be applied to youth in order to encourage better resilience. One form of parenting that is not only positive but also challenging. By training and familiarizing children with these life skills, children's resilience to deal with problems and pressures effectively and appropriately will be trained.

Limitations

In this study, only maternal perceptions of parenting were studied, while father involvement was not examined. In addition, in Indonesia, the role of parenting sometimes involves other people, such as grandmothers, grandfathers, aunts, and caregivers, so that in fact, the main caregiver is not the mother. Therefore, in future research it is important to find out in advance the dominant caregiver for a person.

In addition, the average resilience factor is unknown cause so that in future research it is necessary to look at the factors causing the resilience level which is only in the average category of Dayak youth students. In addition, considering that parenting usually changes over time, the parenting assessment given to parents in this study is global, and not specific to a certain age range. This is of course a limitation to find out whether parenting patterns at what age are more important for youth to encourage their resilience.

Acknowledgements

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Resources

"Adolescent Mental Health" by World Health Organization (WHO): https://www.who.int/news-room/fact-sheets/detail/adolescent-mental-health

"Conceptual frameworks and research models on resilience in leadership" by Ledesma: https://doi.org/10.1177/2158244014545464

"Tren Pengasuhan Masa Kini" by Parenting Indonesia: https://www.parenting.co.id/usia-sekolah/tren-pengasuhan-masa-kini

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The Mediating Role of Emotional Stability Between Critical Thinking Disposition and Self-Knowledge Among Management Students

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Abstract

This study aims to examine the mediating role of emotional stability between critical thinking disposition (Critical openness & Reflective Skepticism) and self-knowledge of the students in a private management institution, in India. A questionnaire survey method was employed to collect data from 384 students enrolled in the management course. SPSS and AMOS software was used to perform data analysis, and the hypotheses were tested using confirmatory factor analysis and structured equation modeling. The results revealed a significant indirect effect of the impact of critical openness (0.108, p=0.001), reflective skepticism (0.063, p=0.001) on self-knowledge was positive and significant. Furthermore, (a) the direct effect of critical openness on self-knowledge in presence of the mediator was also found significant (0.122, p=0.000). Hence, emotional stability partially mediated the relationship between critical openness and self-knowledge. (b) The direct effect of reflective skepticism in presence of the mediator was found insignificant (-0.006. p=0.855). Hence, emotional stability fully mediated the relationship between reflective skepticism and self-knowledge. The study highlights the missing link between academia and industry in the management educational context. Hence, it has practical implications for management students in really pursuing critical thinking disposition, emotional stability, and self-knowledge to get the industry to connect.

Keywords: Critical Openness, Reflective Skepticism, Emotional Stability, Self-Knowledge

Introduction

In the recent decade, potential employers expect business graduates to possess critical thinking skills for making appropriate decisions in the business. (Kumar, 2020) finds that the gap exists in employability skills among management students. As graduating students are concentrating more to obtain high academic grades during their graduation time, as a result of this attitude the students have less skill and tolerance and they are not able to sustain their job. To fill the gap between college and corporate, incorporating more challenging major subjects in the curriculum needs to be made, which enhances the critical thinking and soft skills of students. For this purpose, higher education program needs to include critical thinking in the curriculum (Bandyopadhyay & Szostek, 2018). Critical thinking is not only a skill needed for making appropriate business decisions but also one of the life skills. As per the Quality Mandate of the University Grant Commission (UGC) 2019, Life skills play an important role in increasing the employability as well as self-esteem of the students. It is always said that life skills are the core skills each individual must acquire and inculcate internally as well as externally for the betterment of self and others. Hence, most business management programs consider these skills as an important student learning goal. These multidimensional perspectives on students' academics contribute to their perceptions of preparedness for the transition from university to work. The learning experiences such as career-related experience and employability skills help graduates in the transition to work (García-Aracil et al., 2021).

"Critical thinking is based on two assumptions: first, that the quality of our thinking affects the quality of our lives, and second, that everyone can learn how to continually improve the quality of his or her thinking" (Paul 1993:23). Management students having a moderate level of skills can go to the next level while demonstrating their positive attitude and behaviors along with thinking skills (Selvam & Rozario, 2016). By giving creative thinking training to the students, their critical thinking can also be promoted (Khoorchani et al., 2019). The critical thinking elements such as inference, analysis, interpretation, and evaluation help students to provide solutions and solve problems based on the phenomenon or problem they choose (Scientists, 2019) Students' critical thinking patterns were oriented to analytic thinking skills thus, the students analyze the phenomena around them by exposing evidence and reason to provide solutions according to the information and knowledge they get.

In today's scenario, an individual needs multi-tasking skills to sustain and gain employment rather than being good at one skill (Ganesan & Ganesan, n.d.). Hence to sustain in this competitive world, we need to train the students to manage their emotions (Ajhar & Wahed, n.d.) Based on that, the mental health of the students also gets improved. As parents and teachers, everyone pay more attention to how students behave than how they are feeling; many of their emotions get overlooked. An emotionally stable student will maintain their focus on things no matter how difficult or challenging it is (George & Mampilly, 2012). Particularly, emotionally stable students have effective team behaviors and interpersonal skills. Also, emotional competence is a significant predictor of career judgments and emotional stability is a predictor of career concerns in young adolescents (Bubić & Ivanišević, 2016). Through evaluative judgments, students were able to judge the work themselves and others (Panadero et al., 2019) thus developing knowledge about their assessment capability. Self-awareness provides one with greater Self-knowledge and it is perceived to be the output of Self-awareness and the foundation for self-improvement. (Carden et al., 2022) defines Self-awareness as:

Self-awareness consists of a range of components, which can be developed through focus, evaluation, and feedback, and provides an individual with an awareness of their internal state (emotions, cognitions, physiological responses), that drives their behaviors (beliefs, values, and motivations) and an awareness of how this impacts and influences others.

Pandemic situations made employers need to increase to meet the industry standards. Employers expect MBA graduates' ability to think critically and it becomes more important than ever before. Many researchers attempt to study the effects of self-related dimensions such as self-concept, self-efficacy, self-esteem, self-regulation, and many more. Only a few attempts were made to analyze the self-knowledge of the students'. It is unclear from the previous research whether personality trait emotional stability plays a mediating role in the relationship between disposition toward critical thinking and self-knowledge in MBA students. The main aim of this study is to examine these associations in management students.

The objectives of the study are,
- To investigate the influence of critical thinking disposition (critical openness and reflective skepticism) on students' self-knowledge.
- To study the impact of emotional stability on students' self-knowledge.
- To test the mediating role of emotional stability between critical thinking disposition (critical openness and reflective skepticism) and students' self-knowledge.

Background Theory

The prevailing psychological theory in the 1930s was behaviorism which occurred externally as a result of a subject's interaction with external events and actions. According to Psychologist Jean Piaget, who first developed the cognitive psychology theories at the time, focused on mental processes that occurred internally, rather than behaviorism. He also viewed that human subjects not only react to the things around them (Stimuli → Response) but also process and store information related to those things (Cognitive process). In this context, the basis for the interpretation of learning involves cognitive processes and activities such as processing information, mental representations, guesses, and expectations (Çeliköz et al., 2016). Jean Piaget in his book "Understand is to Invent", states that understanding results from discovery, and an individual will be got stuck in repetition without understanding. Thus, Cognitive Learning theory explains why a student needs to understand their thinking process, and knowledge in making the right decisions through critical thinking elements such as inference, interpretation, analysis, and evaluation, but also learns how to balance their emotions which has a greater impact on cognitive functions. We use this theory to frame the conceptual model which links the Stimulus (critical thinking dispositions such as critical openness and reflective skepticism) to Response (self-knowledge) along with the cognition process mediation of emotional stability.

Critical Thinking Disposition (Stimulus)	→	Emotional Learning (Cognitive process)	→	Self-Knowledge (Response)
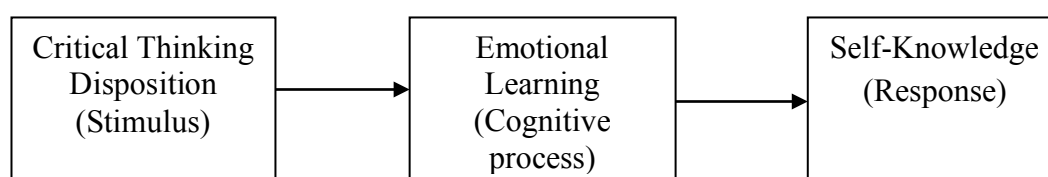
Literature Review

Critical Thinking Disposition and Self-Knowledge

(Fasko, 2003, p.8) defines critical thinking as "the propensity and skills to engage in activity and 'mental activity' with reflective skepticism focused on deciding what to believe or do." (Sosu, 2013) identified that the disposition toward critical thinking has two dimensions – critical openness and reflective skepticism. A person's critical openness involves generating new ideas, evaluating ideas, and being prepared to modify one's views in light of the evidence. A person's willingness to learn from experience and to question the evidence is referred to as reflective skepticism. (Sosu, 2013) also finds critical thinking includes both skill and dispositional dimensions. A person's willingness to apply acquired skills in solving a problem or decision to be made is referred to as disposition dimensional (Facione, 1990). Whereas the skill dimension is the ability of a person to understand problems and develop reasoned solutions. The skill dimension consists of the abilities such as analysis, interpretation, and conclusion (Chan, 2019).

In a rapidly changing business world, critical thinking plays a significant role in all disciplines. The study (Nakatani & Wynekoop, 2020) states that the exercises designed to replace the instructor with student self-reflection help to improve students' critical thinking skills. Hence the instructors do not need to provide customized feedback to each student. (Prakoso et al., 2021) found a positive relationship between creativity and critical thinking disposition. These two factors also positively influenced the academic performance of the students. Several recent studies have examined this relationship in the educational context. From the study, researchers conclude that the higher a person's creativity, the higher their critical thinking skills.

(Lailiyah & Wediyantoro, 2021) identified three factors, namely confidence in critical thinking, valuing critical thinking, and misconception by exploring students' attitudes and beliefs toward critical thinking skills. The study shows that students have positive attitudes toward confidence in critical thinking and valuing critical thinking and there was no student misconception of critical thinking. Though the students show a positive perception of attitude and belief, they tend to lack confidence. The perceptions, interpretations, and judgments of a person can be influenced by their self-knowledge. Regardless of the importance of students' attitudes toward confidence in critical thinking, valuing critical thinking, (Arisoy & Aybek, 2021) identified a positive influence of critical thinking education on students' perceptions. (Adnan et al., 2021) further finds that college students' cognitive and critical thinking ability seems effectively improved through the inquiry-based-leaning model in the higher education course. This allows students to gain an analytical thinking level and respond to a certain inquiry through deep thinking and go beyond mere description. Hence the following hypotheses are proposed:

H1: Critical openness of critical thinking disposition will positively and significantly enhance the self-knowledge of students.

H2: Reflective skepticism of critical thinking disposition will positively and significantly enhance the self-knowledge of students.

Critical Thinking Disposition, Emotional Stability, and Self-Knowledge

According to (Fajari & Chumdari, 2021), students' critical thinking skills were low due to several factors which were originating mainly from the students and teachers themselves. (Álvarez-Huerta et al., 2022) emphasizes that the greater the students' critical thinking disposition, the stronger their creative self-concept. It also indicates students tend to be more open to new ideas. (Lin & Jain, 2018) Being reflective practitioners, student teachers can develop their sense of self-knowledge through peer and mentor assessment practice.

One of the Big Five personality traits emotions plays an important role in several aspects of a student's life such as anxiety, panic o fear, distress, and any other positive and negative emotions. According to their study, (Bernoster et al., n.d.) Identified a result of positive and negative affect from the experiences of someone through their positive or negative feelings and emotions. The study further examined that there exists a positive association between positive affect and entrepreneurial orientation whereas negative affect is negatively associated with entrepreneurial orientation. A study among undergraduate students (Joy, 2020) identified personality traits as a predictor of critical thinking ability in university students. Among the personality traits, openness has the highest prediction of critical thinking. And emotional instability (neuroticism) has the lowest prediction of critical thinking among the students. The study by (Test et al., 2017) states that there is no significant difference in the emotional stability of students concerning their type of school and their gender as well. Other literature (Ajhar & Wahed, n.d.) Also reveals that there is no significant difference between the levels of emotional stability of boys and girls. (Ajhar & Wahed, n.d.). In the research, (Clem et al., 2021) examined there is a strong association between two factors - self-concept of ability and achievement emotions of students. The teacher-student relationship plays a crucial role in these two factors. A better teacher-student relationship in the classroom would help to involve students during the teaching and learning process, through the openness personality trait than emotional instability.

According to the study, (Tahmasb et al., 2008) concludes that there exists a positive relation between Big Five factors and Self-reported Integrated Self-knowledge (ISK). Students' adaptive factors and inner psychological experience were determined by Big Five factors such as Emotional Stability and Openness to experience. These two factors prove to be the most noteworthy and consistent Big Five predictors of ISK from the study. The student's critical thinking and self-regulation have a positive relation to social-emotional learning, and self-regulation has both direct and indirect effects on students' social-emotional learning (Aslan, 2018). Hence these three factors – critical thinking disposition, emotional stability, and self-knowledge as a whole constitutes produce consummate MBA professionals. From the literature, the following hypotheses are proposed:

H3: There is a significant relationship between critical openness and emotional stability.

H4: There is a significant relationship between reflective skepticism and emotional stability.

H5: There is a significant relationship between emotional stability and self-knowledge.

H6: Emotional stability can have a mediating effect on the relationship between critical thinking disposition (critical openness and reflective skepticism) and a student's self-knowledge.

Proposed Research Model

The primary aim of the proposed model was to examine whether the Big Five personality trait - emotional stability plays a mediating role in the relationship between the critical thinking disposition (critical openness, reflective skepticism) and students' self-knowledge. The study expected to find that students who have a stronger critical thinking disposition, also enhance their self-knowledge along with the impact of emotional stability. And in some cases, students enhance their self-knowledge if they practice controlling their emotions along with a critical thinking disposition.
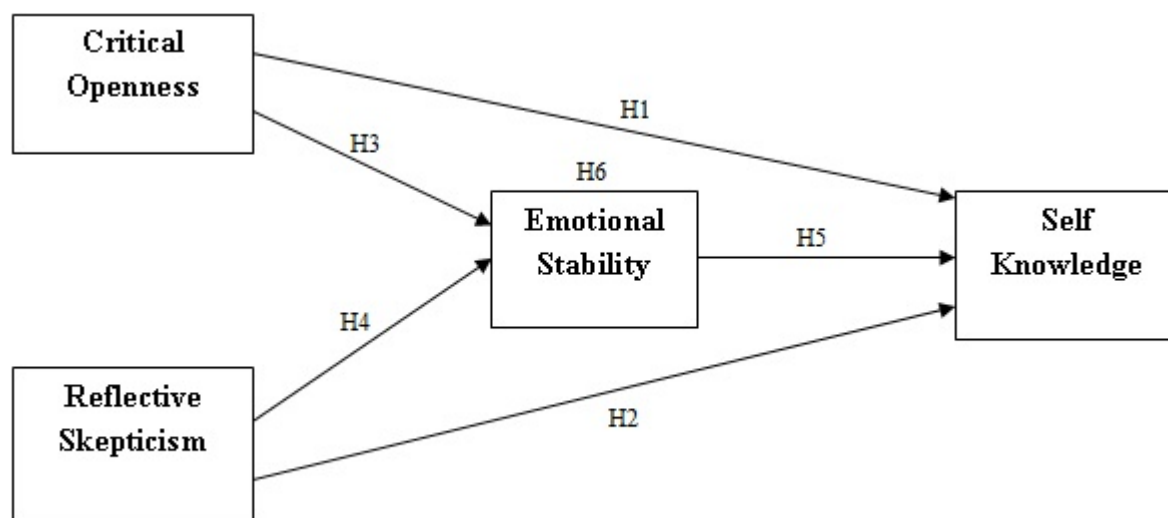
Methods

Participants in the study were 384 students who were enrolled in the management course affiliated with Bharathiar University in the Coimbatore region. Out of 384 students, 200 were male students and 184 were female students. The data was collected among the final year MBA students and their ages ranged from 21 to 23 years. Students were selected through a simple random sampling method and data collection was made through the questionnaire. The final-year students who are nearing their placement activities and ready for the transition from college to work were the main focus of this study.

Measures Used

1. Critical thinking disposition: This measurement adopted a critical thinking disposition scale from (Bravo et al., 2020) (Sosu, 2013), which comprises 11 items. Here 7 items were for critical openness (e.g. I usually try to think about the bigger picture during a discussion) and 4 items for reflective skepticism (e.g. I often re-evaluate my experiences so that I can learn from them). Each item is rated on a 5-point Likert scale (1 = totally disagree; 5 = totally agree).

2. Emotional Stability: This measurement adopted an emotional stability scale from (Li & Ahlstrom, 2016), which comprises 10 items (e.g. Can you recover from unhappiness quickly and not be influenced by it?). Each item is rated on a 6-point Likert scale (1 = totally disagree; 6 = totally agree).

3. Self-Knowledge: This measurement adopted an integrative self-knowledge scale from (Ghorbani et al., 2008), which comprises 12 items (e.g. By thinking deeply about myself, I

can discover what I really want in life and how I might get it). Each item is rated on a 5-point Likert scale (1 = largely untrue; 5 = largely true).

Results and Discussions

(1) Findings from Descriptive Statistics and Correlation Analysis

Table I: Mean, Standard Deviation, Cronbach Alpha coefficient, and correlation coefficient

Variables	Mean	Std. Deviation	Cronbach alpha coefficient	1	2	3	4
1. Critical Openness	20.30	5.111	0.913	1			
2. Reflective skepticism	11.09	3.169	0.816	0.357***	1		
3. Emotional Stability	28.17	4.225	0.943	0.335**	0.274**	1	
4. Self Knowledge	46.23	6.525	0.925	0.367**	0.230**	0.584**	1
***p < 0.001; **p < 0.01							

Table I results, suggest that Cronbach's alpha coefficients calculated for critical thinking disposition (critical openness, reflective skepticism), emotional stability, and self-knowledge were found to range from 0.816 to 0.943. Due to the reliability factor, questions Q8, Q9, and Q10 of emotional stability have been removed. The results also indicate that the sample under study has a favorable perception of critical thinking disposition, emotional stability, and self-knowledge among MBA students. Also, the correlation coefficients for the variables under study, critical thinking disposition (critical openness, reflective skepticism), emotional stability, and self-knowledge were found to be positive and significant at a 0.001 and 0.01 level of significance.

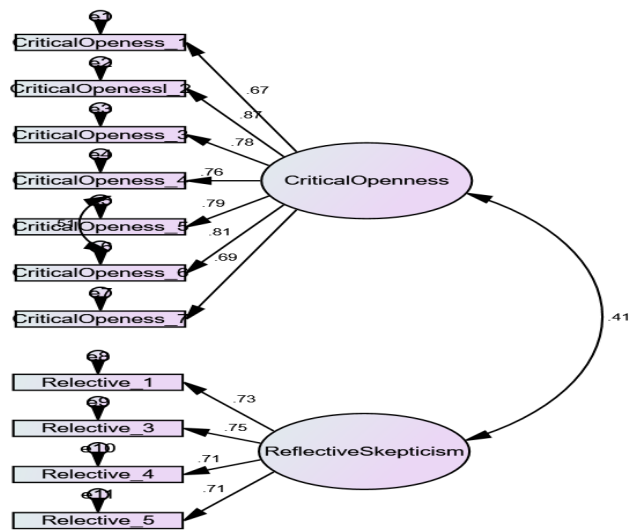**(2)   Findings from Confirmative Factor Analysis (CFA)**

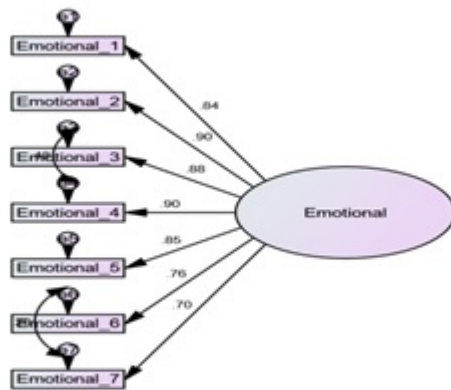Figure 1: CFA for Critical Thinking Disposition (Critical Openness and Reflective Skepticism)
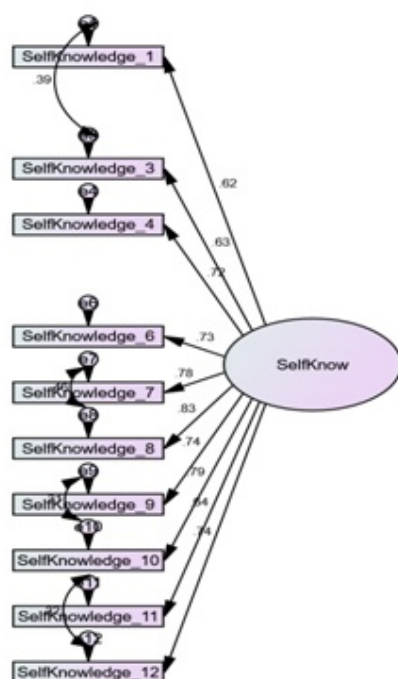

Figure 2: CFA for Emotional Stability

Figure 3: CFA for Self-Knowledge

Table II: CFA - Goodness of fit

Model	χ^2 / df	GFI	AGFI	NFI	CFI	TLI	RMSEA
Critical Thinking Disposition	1.887	0.966	0.946	0.966	0.984	0.978	0.048
Emotional Stability	5.603	0.953	0.891	0.973	0.977	0.961	0.110
Self Knowledge	3.870	0.940	0.893	0.950	0.962	0.945	0.087

Table II result depicts the CFA test for critical thinking disposition (critical openness, reflective skepticism), emotional stability, and self-knowledge. The CFA for emotional stability are: χ^2 / df = 5.603, GFI = 0.953, AGFI = 0.891, NFI = 0.973, CFI = 0.977, TLI = 0.961 and RMSEA = 0.110. Finally, the CFA for self-knowledge are: χ^2 / df = 3.870, GFI = 0.940, AGFI = 0.893, NFI = 0.950, CFI = 0.962, TLI = 0.945 and RMSEA = 0.087. Questions Q2 and Q5 of self-knowledge have been removed due to poor loading from CFA. These indices confirm the hypotheses and sample fit. These values satisfy the reference values of the χ^2 / df which range between 2 to 3, GFI, AGFI, NFI, CFI, TLI which lies between 0 to 1, and RMSEA value, which should be ≤ 0.10. The overall fit indices of our measurement model are generally good, which indicates a good model fit. The model fitness output helps the researchers to proceed further with the path coefficients.

(3)   Findings from Structured Equation Modelling (SEM) and Hypothesis Testing
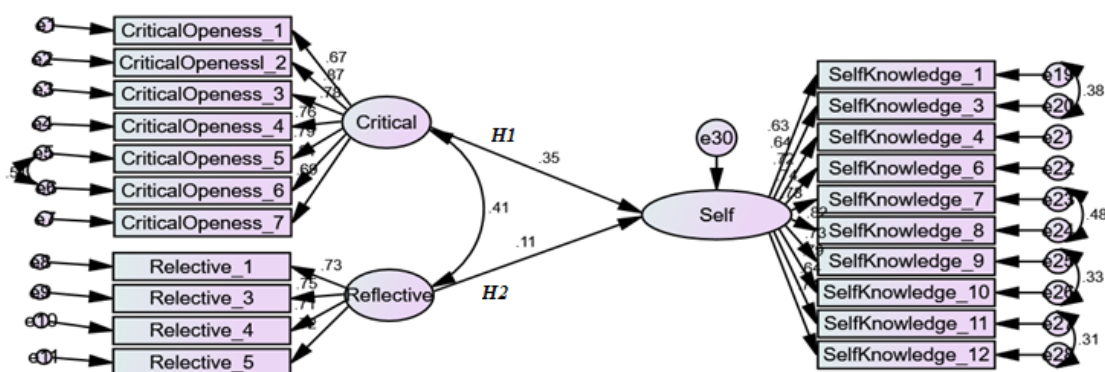
(3.1) To check for the mediation process

Figure 4: SEM for the direct effects of critical thinking disposition on self-knowledge

Table III: Hypotheses Tests (H1, H2, H3, H4 and H5)

Hypotheses	Effects	Standardized Regression Weights	P	Result
H1	CO – SK	0.345	***	Accepted
H2	RS – SK	0.11	*	Accepted
H3	CO – ES	0.285	***	Accepted
H4	RS – ES	0.199	**	Accepted
H5	ES – SK	0.572	***	Accepted
Note: CO – Critical Openness; RS – Reflective Skepticism; ES – Emotional Stability; SK – Self-Knowledge					
P < 0.001 (***), P < 0.01 (**), P < 0.10 (*)					

Table III result depicts the standardized direct effect of critical openness and reflective skepticism on self-knowledge ($\beta = 0.345$, $p = 0.001$; $\beta = 0.11$, $p = 0.10$), is positive and significant. Thus hypotheses H1 and H2 are both significant and accepted. Thus the critical thinking disposition (critical openness and reflective skepticism) has a direct impact on self-knowledge. So we can proceed with the mediation model. Table III also contains the values of standardized path coefficients of critical openness and reflective skepticism on emotional stability and also emotional stability values on self-knowledge. Hypothesis H3, critical

openness is positively related to emotional stability (β = 0.285, p = 0.001). Hypothesis H4, reflective skepticism is positively related to emotional stability (β = 0.199, p = 0.01). These findings find support in other similar studies (Wicaksana et al., 2020) that critical thinking activities not only have an impact on students' self-knowledge, further it also helps in enhancing other skill dimensional activities such as analysis, evaluation, and conclusion, which helps students to understand problems and develop reasoned solutions (Chan, 2019). Also concurrently it increases the student's well-being (Mertens et al., 2017). And, Hypothesis H5, emotional stability is positively related to self-knowledge (β = 0.572, p = 0.001). This finding support results from other studies (Mohammad Amin Wani, 2016)(Kumaravelu, 2018)(Khurshid & Khurshid, 2018), wherein emotional stability plays a significant role in enhancing student's self-knowledge as well as helps in their overall academic performances(Wicaksana et al., 2020)(*European Journal of Educational Research*, 2021).

(3.2) Test for Mediation

By using the bootstrapping procedure, the mediating effect of emotional stability explaining the relationships between critical thinking dispositions (critical openness and reflective skepticism) and self-knowledge were tested. The researchers conducted the bootstrapping method (Preacher & Hayes, 2008) using mediation with 5000 random samples using a 95% level of confidence. Table IV shows the result of the direct effect and indirect effects of mediation.
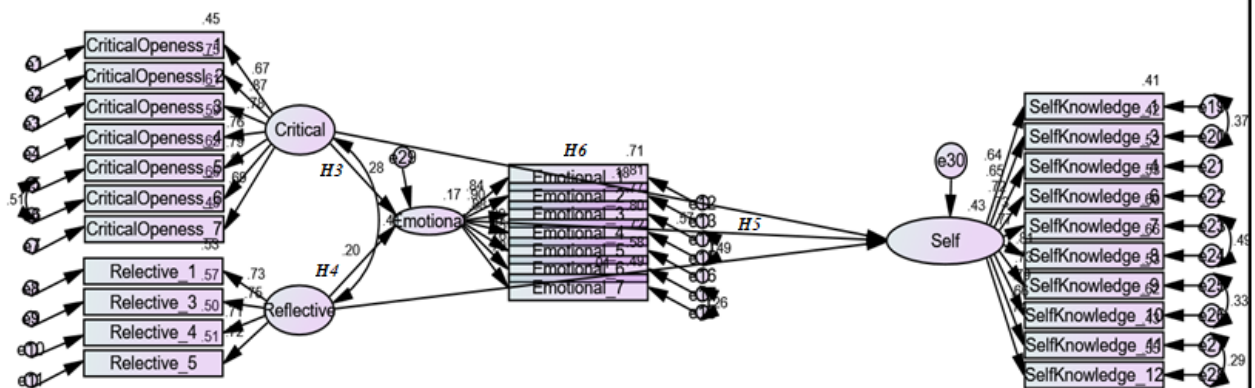

Figure 5: SEM for the impact of critical thinking disposition on self-knowledge through mediating role of emotional stability

(3.2.1) Examining the indirect effect of critical thinking dispositions through emotional stability to the construct self-knowledge

As a first step, whether the mediation is present or not was checked. The indirect effect of critical openness to self-knowledge through emotional stability is found to be 0.108 and the indirect effect of reflective skepticism to self-knowledge through emotional stability is found to be 0.063. The indirect effect is known, but we still, need to know if the indirect effect is significant and if it falls within the 95% confidence interval generated by bootstrap. Through the results from Bias corrected percentile method link the lower bound (LB) and upper bound (UP) indirect effects were found to be LB = 0.071; UB = 0.157 for critical openness and LB = 0.036 and UB = 0.105 for reflective skepticism. Since there is no zero between the lower bound and upper bound confidence interval; it shows clearly that the indirect effect is significant. And also the value 0.001 and 0.000 at the intersection of critical thinking dispositions and self-knowledge shows two-tailed significance and both values were less than 0.05. Hence, concluded that emotional stability mediates between critical thinking dispositions and self-knowledge in which hypothesis H6 is accepted.

(3.2.2) Assessing the type of mediation

Table IV: Assessing the type of mediation

Relationship	Direct Effect	Indirect Effect	Confidence Interval		P - value	Conclusion
			Lower Bound	Upper Bound		
Critical openness → Emotional stability → Self-knowledge	0.122 (0.000)	0.108	0.071	0.157	0.001	Partial mediation
Reflective skepticism → Emotional stability → Self-knowledge	-0.006 (0.855)	0.063	0.036	0.105	0.001	Full mediation

From table IV, it was identified that the direct effect of critical openness on self-knowledge in the presence of the mediator was found to be significant (0.122, P = 0.000). Hence, emotional stability partially mediated the relationship between critical openness and self-knowledge. Students are therefore amplifying existing knowledge by exposing them to disposition elements such as new ideas generation and lookout, evaluation of arguments, inference, deduction, and experiences. By practicing the cognitive process of balancing mental activities such as positive and negative emotions during their learning and decision-making process, students further increase their self-knowledge effectively and come out with a logical and feasible solution to the given problem.

At the same time, the direct effect of reflective skepticism in the presence of the mediator was found to be insignificant (-0.006, P = 0.855) which implies that emotional stability fully mediated the relationship between reflective skepticism and self-knowledge. In this context, students enhance their self-knowledge through the disposition elements such as analyzing and re-evaluating from their past experiences, checking the creditability of information sources, and thinking in a wider inference of decisions before taking appropriate and improved actions. This context demands more mental-related activities like balancing negative emotions like unhappiness, anxiety, upset, fear, and distress during the learning and decision-

making process. Thus, students need to obtain emotional stability in addition to reflective skepticism element to enhance their knowledge.

Implications

The findings from the study indicate that, while the importance of critical thinking disposition is acknowledged in the existing literature, theoretical explanations are limited in justifying the positive and significant mediating role of emotional stability in enhancing students' self-knowledge. We found that one of the Big Five Personality Traits emotional stability mediates the relationship between critical thinking disposition and students' self-knowledge. In other words, we can say that students who were more disposed toward critical openness through new idea generation, idea evaluation, and preparedness were also good enough at controlling emotions and in turn, enhancing their self-knowledge effectively. The other group of students who were disposed toward reflective skepticism, while willing to learn from experience and to question the evidence, seems quite unstable in controlling their emotions, (Clem et al., 2021), and in turn, they also can enhance their self-knowledge effectively if they master their emotions and maintains emotional stability. This relationship pattern has significant implications for MBA students, as it indicates the need to practice emotions as mastering one's emotions is vital in both work and life. The theoretical context of the study suggests that students to better prepare for the transition from to corporate world, ensuring that the relationships between all three variables examined in this research are used at the required level for attaining more self-related aspects and life skills (Siva & Eagavalli, n.d.).

Conclusion

From the results of the present study, it is confirmed that critical thinking disposition (critical openness, reflective skepticism), as hypothesized, positively and significantly influenced management students' self-knowledge. The results also indicate that emotional stability, in particular, plays a partial mediation effect in the relationship between critical openness and self-knowledge. And, full mediation effect in the relationship between reflective skepticism and self-knowledge. Further, it highlights the importance of critical thinking disposition among MBA students, so that they can use their skills for making better, right, and instant decisions in the rapidly changing business environment by overcoming hindrances.

Limitations and Suggestions for further research

This research also has its limitations that need to be addressed in further studies. The first limitation of this study is that students were from one management (MBA) college affiliated with Bharathiar University, focused on the Coimbatore region alone; therefore it is not clear to what extent we can generalize our findings. The second limitation is that though the proposed relationship helps in the student's enhancement process, there is a possibility of a reciprocal of the proposed model. The third limitation is that among the Big Five Personality traits, emotional stability alone is considered under this model and it does not add emotional instability (neuroticism). Thus, it excludes the remaining personality traits. Further research on critical thinking disposition in the educational context can include other personality traits (George & Mampilly, 2012), self-related dimensions, and students from various colleges, universities, disciplines, and geographical areas. Also, it can include a gender-based model to measure students' versatility.

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Modes of Learning and Performance Among Graduates During a Pandemic in a State University in Romblon, Philippines

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Abstract

Quality education is a key commitment of Romblon State University. By providing a performance assessment of students exposed to modes of learning during a pandemic, this study aimed to describe their performance in different learning modalities during COVID-19. This study focused on all 2021 graduates from the College of Education in determining their modes of learning, municipal base, and majors pursued before and during COVID-19 and how these hypothetically affected their performances as indicated by their corresponding Grade Weighted Averages (GWA). Out of 68 graduates, 23 reside in Odiongan, while 29 pursued Music, Arts, Physical Education, and Health (MAPEH) Major. This study found that there was a significant difference in GWA of graduates in different modes of learning ($F=19.81$, $p=0.00$), municipal base ($F=14.93$, $p=0.00$), and major pursued ($F=7.03$, $p=0.03$). The highest GWA was manifested by graduates engaged in online mode (1.65) but not necessarily better off than in face-to-face and mixed modes (1.84). Graduates from 6 out of 12 municipalities performed the least during mixed mode throughout the height of COVID-19. Moreover, graduates with majors in Biological Science and MAPEH, performed the least during face-to-face mode but performed best during the online mode, while graduates with majors in English and Technology and Livelihood Education (TLE) performed the least during mixed mode but performed best during online mode. Considering these key findings, university administration should undertake proactive measures to ensure its technology and dynamic interactions or feedback can reach impeded students from performing in a mixed mode of learning.

Keywords: COVID-19, Learning Modality, Grade Average

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Introduction

The coronavirus disease 2019 (COVID-19) pandemic has triggered sudden and unexpected crises not only in the health, economy, and tourism, but also in the education sector, to a great extent. The virus, which first emerged in December 2019, became a pandemic leading to school closures and eventually migration to remote learning by all levels of educational institutions. Countries have had to suspend face-to-face education to reduce viral transmission and have tried to provide distance education opportunities to ensure continuity in education (Can, 2020). Thus, the traditional delivery of instruction in education has transformed, and in turn, learning spaces were re-organized.

Although generally, the education system seems unprepared and may transpire unpredicted consequences during and beyond the crisis, it produces different measures to immediately sustain education efforts with utmost consideration to provide education as a fundamental human right (Bozkurt & Sharma, 2020). On a global scale, UNICEF (2020) reported that more than 1.5 billion learners of all ages are affected because of school and university closures. As reported by the most recent comprehensive study including 31 countries, a fair degree of educational continuity has been achieved in most countries through the decades of experience with distance education, use of a wide range of technologies, tools and social support from the teachers, students, parents and administrators, while the rest were challenged not so much by the technology but by the lack of planning, coordination, communication and management which placed a heavy burden on students, parents and teachers (Rotas and Cahapay, 2021 and UNESCO, 2020).

In the Philippines, not every student can provide and adapt to the rapid advances in technology in today's digital age (Alvarez, 2020), especially for developing countries in which education is plagued by problems even before the pandemic. A study by Rotas and Cahapay (2021) and Santos (2020) revealed that despite the efforts to make education accessible for all, there is still a digital divide among Filipino students, and other difficulties are still confronting Filipino university students in the practice of remote learning, such as online and blended modalities (Rotas and Cahapay, 2021 and Santos, 2020).

Thus, this study aimed to describe the performance in different learning modalities of graduates during COVID-19.

Methodology

This section presents the methods used in this study. It includes the research design, study group, data gathering, and analysis, which are discussed as follows:

Research Design

This quantitative study used a correlational approach, which aims to investigate relationships between two or more variables without the study investigators controlling or manipulating any of them (Mohajan, 2020). In this context, the performance in different learning modalities of graduates amid COVID-19 was examined.

Study Group

This study involved a group of purposively and conveniently selected 68 graduates of the RSU Main for the academic year 2020 to 2021. The participants were selected based on the availability of their transcript of records. The transcripts were coded and only seen by the study investigators.

Furthermore, it should be noted that this sample does not represent the entire population, but it is considered acceptable to demonstrate the purpose of this study (Mohajan, 2020). The study investigators do not intend to generalize the results but to quantitatively describe the performance in different learning modalities in the wake of COVID-19.

Data Gathering and Analysis

The risk of contamination of COVID-19 was considered while conducting the study; the entire data collection process was carried out virtually to avoid the risk of transmission.

A correlational approach was employed in this study. The operational definitions of the variables used for this study are as follows:

Performance was based on the Grade Weighted Average (GWA) of the student upon graduation; and

Mode of learning was assessed by the most dominant mode of learning in one's life as graduating student, such as face-to-face, online, or mixed mode of learning.

Analytical works on descriptive statistics (frequency, percentage, mean, and variance) and inferential statistics (analysis of variance test with a significance level of 0.05) on the study variables, performance, and mode of learning were processed using spreadsheets (Excel version 2021).

Results

This study was guided by its purpose to describe the performance in different learning modalities of graduates during COVID-19. This section presents the results as follows:

General Profile of the Graduates

Of the 68 graduates from the College of Education for the academic year 2020 to 2021, the majority reside in Odiongan (23, 33.8%), which is the capital municipality, followed by Alcantara (13; 19.1%) and Ferrol (13; 19.1%), which are the adjacent municipalities of Odiongan, and pursued the Music, Arts, Physical Education, and Health (MAPEH) Major (29, 42.6%), as shown in Table 1.

Characteristics	Frequency (n=68)	Percentage
Municipal Base		
Alcantara	13	19.1
Calatrava	1	1.5
Concepcion	1	1.5
Corcuera	3	4.4
Ferrol	6	8.8
Looc	13	19.1
Odiongan	23	33.8
Romblon	1	1.5
San Agustin	2	2.9
San Jose	1	1.5
Santa Fe	1	1.5
Santa Maria	3	4.4
Major Pursued		
Biological Science	1	1.5
English	16	23.5
MAPEH	29	42.6
TLE	22	32.4

Table 1: Profile of the Academic Year 2020 to 2021 Graduates from
the College of Education, RSU Main

Grade Average and Mode of Learning

The findings (as shown in Table 2) show a statistically significant difference (F=19.81, p=0.00) in performance by mode of learning of the graduates from the College of Education for the academic year 2020 to 2021, which indicates that the mode of learning affect the overall performance of the graduates. The highest GWA was manifested by graduates engaged in online mode (1.65) but not necessarily better off than in face-to-face mode (1.84) and mixed mode (1.84), indicating that online learners performed as well as those who are exposed to face-to-face and mixed modes.

Mode of Learning	Grade Average	Test Result
Face-to-face	1.84	Anova Test = 19.81
Mixed	1.84	Significance =
Online	1.65	0.00
		(significant p<0.05)

Table 2: Grade Weighted Average by Mode of Learning of the Academic Year
2020 to 2021 Graduates from the College of Education, RSU Main

Other Factors Related to Grade Average

Exploring other factors that are related to performance (as shown in Table 3), such as municipal base (F=19.81, p=0.00) and major pursued (F=7.03, p=0.03) of the graduates from the College of Education for the academic year 2020 to 2021, reveals statistically significant impact to grade average, which implies that the performance of the graduates was different respective to their municipal base and major pursued.

Graduates from 6 out of 12 (50%) municipalities performed the least during mixed mode throughout the height of COVID-19, especially those reside in Concepcion, Ferrol, Looc, Odiongan, and San Jose. Moreover, graduates with majors in Biological Science and MAPEH performed the least during face-to-face mode but performed best during the online mode, while graduates with majors in English and Technology and Livelihood Education (TLE) performed the least during mixed mode but performed best during online mode.

Characteristics	Means			ANOVA Test Result
	Face-to-face	Mixed	Online	
Municipal Base (Face-to-face: min=2.03; max=1.59) (Mixed: min=1.91; max=1.62) (Online: min=1.79; max=1.54)				
Alcantara	1.75	1.81	1.63	
Calatrava	1.60	1.62	1.54	
Concepcion	1.8	1.89	1.62	
Corcuera	1.61	1.78	1.52	
Ferrol	1.77	1.87	1.79	
Looc	1.85	1.84	1.67	F = 14.93, p = 0.00
Odiongan	1.95	1.91	1.67	
Romblon	1.82	1.74	1.59	
San Agustin	2.03	1.88	1.55	
San Jose	1.85	1.79	1.62	
Santa Fe	1.81	1.63	1.71	
Santa Maria	1.59	1.66	1.58	
Major Pursued (Face-to-face: min=1.94; max=1.71) (Mixed: min=1.94; max=1.78) (Online: min=1.75; max=1.33)				
Biological Science	1.94	1.93	1.33	
English	1.71	1.78	1.48	F = 7.03, p = 0.03
MAPEH	1.87	1.80	1.75	
TLE	1.87	1.94	1.66	

Table 3: Other Factors Related to the Grade Average of the Academic Year 2020 to 2021 Graduates from the College of Education, RSU Main

Discussion

It has been recognized that the transition to a new educational system for most universities was not properly organized, thus, this study aimed to describe the performance in different learning modalities of university graduates during COVID-19. Quality education is a key commitment of RSU. The COVID-19, which is a respiratory infectious disease, emerged and became a pandemic as the university geared towards transitioning into a resilient, green, and smart university. The graduating students in the academic year 2020 to 2021 experienced different modes of learning, such as face-to-face mode during their second year (the academic year 2018 to 2019), mixed mode, where the height of the pandemic took place and caused a sudden shift from face-to-face mode to online mode due to quarantine protocols (the academic year 2019 to 2020), and online mode (the academic year 2020 to 2021).

This study found that the overall performance of graduates during the online mode of learning has varied statistically and significantly from face-to-face and mixed modes of learning indicating potential grading leniency. In systematic reviews that compared various dimensions of face-to-face and the online experiences of students, Fahy (2005) found that online students engage less tension-release behaviors by spending most of the time on task-related problems, less on supportive socio-economic activities, and almost none on negative socio-emotional problems, Moore and Kearsley (2011) also revealed that distance learners have a greater likelihood of drop-out from the course if they receive little or no assistance in their studies; if they receive little or no interaction with the tutor and other students; if they receive little or no feedback about the progress of their studies, and Bautista and Quiambao (2017) similarly presented that a discussion forum was relied upon by the students among online learners, and consequently pointed out that better interaction and poor internet connection were given by the majority of those who prefer the face-to-face learning environment in the Philippines (Bautista and Quiambao, 2017; Fahy, 2005; and Moore and Kearsley, 1996).

Moreover, in systematic reviews that compared learner satisfaction and learning outcomes in both online and face-to-face learning environments, Johnson et al. (2000) revealed that students in the face-to-face learning environment held slightly more positive perceptions about the instructor and course quality, Strickland and Butler (2005) also described that students' satisfaction with the online course was comparable to that of the traditional face-to-face class, and Bautista and Quiambao (2017) similarly found that online, mixed, and face-to-face learners performed at the same level with convenience as vital in the preference of students in mixed mode of learning (Bautista and Quiambao, 2017; Johnson et al., 2000; and Strickland and Butler, 2005).

This study also found that the performances of the graduates in different learning modalities were different statistically and significantly in terms of their municipal base and major pursued. In a study that described the difficulties in remote learning of university students in the Philippines in the wake of the COVID-19 crisis, Rotas and Cahapay (2021) emphasized recurring complications, such as unstable internet connectivity; inadequate learning resources; electric power interruptions; vague learning contents; overloaded lesson activities; limited teacher scaffolds; poor peer communication; conflict with home responsibilities; poor learning environment; financial-related problems; physical health compromises; and mental health struggles, to online and blended learning.

Consistent with previous studies by Kerres (2020); Sarwar et al. (2020); Subedi et al. (2020); and Verawardina et al. (2020), students situated in deep rural areas find it difficult to stay connected with online learning due power interruption, use e-learning content meant for on-campus learning, online library materials, or complicated e-learning operations system in Germany, Pakistan, Nepal, and India.

Conclusion

This study found that the performance of the graduates had been substantially affected by the mode of learning, which implies that even if RSU Main shifts back to mixed mode, the performance of the students need not be behind the students in the online mode. Considering these key findings, university administration should undertake proactive measures, such as rigid monitoring of the various modes of learning, adapting effective assessments for learning, creating a table of specifications for major examinations, evaluating teaching

effectiveness and interaction, conducting satisfaction surveys, etc. to ensure its technology and dynamic interactions or feedback can reach impeded students from performing in a mixed mode of learning.

This study acknowledges its limitation of being conducted with a small sample. Larger surveys should be conducted for future research to further understand the improvements or difficulties of the students across levels or courses.

Acknowledgements

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How to Support ESL Learners' Writing by Using Mentor Texts

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Abstract

To write effectively is a crucial but challenging skill from which everyone could benefit (Kane, 2012). In this article, I report on action research where I utilized mentor texts and mini-lessons to teach writing to an English as a Second Language (ESL) learner who was experiencing writing anxiety because of his dislike of academic writing rules and the lack of the ability to write coherently. In order to minimize his writing anxiety and enhance his writing skills, I planned three phases for action and implemented the first two phase action plans. The findings suggest that through the use of mentor texts, ESL learners can better appreciate the beauty of coherence in mentor texts and are willing to write creatively but with strong coherence by imitating the structure, craft, and style in the mentor texts. Furthermore, mentor texts should be carefully chosen to meet ESL students' interests and needs. Last but not least, the writing intervention could start from the sentence level and then move to the paragraph level.

Keywords: Mentor Texts, ESL, Writing Skills, Writing Anxiety

Introduction

To write effectively is extremely important as a means of communication in the 21st century, but is also arguably the most demanding challenge for all school students (Kane, 2012). Language learners, especially English as a Second Language (ESL) learners, experience writing anxiety which might result from their low self-confidence in English writing and gender and grade level (Cheng, 2002) and their lack of writing skills (Daud, Daud, & Kassim, 2016). Such anxiety discourages them from writing. With no exception, Chinese ESL learners also experience writing anxiety, ranging from middle school students (Wern & Rahmat, 2021) to college English major students (Zhang, 2011). Consequently, it is important to research how to emotionally support Chinese ESL students while improving their writing skills.

Mentor texts are recorded to contribute to students' self-efficacy and success in writing. Escobar Almeciga and Evans (2014) defined mentor texts as "a piece of writing that is observed and analyzed so that students may attempt to imitate one or more linguistic functions" (p. 100). With the help of mentor texts, students can identify, analyze, and then imitate the authors' writing craft. With the use of mentor texts, students' confidence in writing can be gradually built upon (Adame, 2019) because these texts serve as writing models, allowing students to think and write as writers (MacKay, Ricks, & Young, 2017). Much research has been conducted documenting the benefits of mentor texts rather than specific ways in which mentor texts can be employed to emotionally and academically support ESL students' writing.

In this article, I report on action research where I utilized mentor texts and mini-lessons to teach writing to a Chinese ESL learner who was experiencing writing anxiety because of his dislike of academic writing rules and the lack of the ability to write coherently. To minimize his writing anxiety and enhance his writing skills, I planned three phases for action and implemented the first two phase of action plans. Recognizing the complexity of the writing process, I do not propose a solution to a long-standing challenge faced by ESL students, but I share my instruction plans and reflections in this article which are hoped to better support ESL students' writing and ESL teachers' writing instructions. The goal of this action research was to understand: 1) How mentor texts can be used to emotionally support ESL learners' writing; 2) How mentor texts can be used to improve students' writing coherence; 3) What aspects of mentor texts affect ESL students' writing.

Literature Review

Guiding Cognitive Theories

One guiding theory of this action research is Jean Piaget's cognitive constructivism. Piaget theorizes that "cognitive development is the result of the dynamic interactions between the child's thinking and reality which are promoted by the inner psychological tendencies to overcome the disequilibrium in his or her mind" (as cited in Inoue, 2012, pp78). When humans encounter new knowledge, the gap between what they can do and what they want to do motivate them to acquire the new knowledge by utilizing their prior knowledge and developing the new knowledge. Piaget's constructivism effectively serves as theoretical guidance in my mentoring for the writing of my ESL student named John (pseudo name). When dynamically interacting with published mentor texts that are well written by writers, John, who disliked the rigid rules of five-paragraph academic essay writing, can internally

interpret the sample creative literature texts and develop his writing with vivid descriptions and focused topics.

Meta-cognition is defined as "a higher level of thinking that monitors a series of your thinking processes so that you can navigate complex factors and dynamics involved in the task in a systematic, integrated fashion" (Inoue, 2012, pp47). When reflecting upon the knowledge they are learning, students can identify what they are learning well and what they need to improve. In the long run, by knowing what they excel in and improving their weakness, their confidence as well as content knowledge can be strengthened while learning. During the research, I used the meta-cognition strategy to encourage my ESL student John to monitor and adjust his thinking and behaviors, which was hoped to build his confidence and stamina on creative writing he desired. In other words, by thinking about the thinking presented in his essay, John can adjust his writing to a better one or get emotional support from the writing section that is creative and well-developed.

This research is also grounded in Lev Vygotsky's sociocultural theory. Vygotsky emphasizes "the role of social interactions and situations as the key driving force for knowledge development" (as cited in Inoue, 2012, pp95). Social interactions contribute to effective learning because knowledge co-constructions within the zone of proximal development, a key step of a learning process, are more likely to happen when more capable peers serving as experts scaffold the learning process (Vygotsky, 1978). I took advantage of the one-on-one meeting with my ESL student John to exchange our perspectives on mentor texts and his writing as much as possible. On one level, such interactions might inspire my student John to deepen his understanding of the provided mentor texts and write his essays in a way that a mentor text is written. On another level, as a lifelong learner and teacher at the same time, I would like to co-construct knowledge with my student rather than just impart knowledge, which is also beneficial to build a harmonious relationship between John and me. Besides, the concept of scaffolding proposed by Vygotsky (1978) also guides me on how to facilitate my student's learning. When teaching creative writing at the initial stage, I need to assist my student heavily. After he reaches a certain level, there is a necessity to remove my assistance gradually until he can independently write a creative essay with a clear topic and coherent organization.

Mentor Texts

Escobar Almeciga and Evans (2014) defined mentor texts as "a piece of writing that is observed and analyzed so that students may attempt to imitate one or more linguistic functions" (p. 100), while mentor texts are also defined by Dorfman and Cappelli (as cited in Dollins, 2016,) as "pieces of literature that we can return to again and again as we help young writers learn how to do what they may not yet be able to do on their own" (p. 49). In either definition, mentor texts are mentioned as exemplars of good writing for writers to learn and imitate.

Much research has been conducted documenting the effect of mentor texts on classroom practices. English as a foreign language (EFL) learners' writing accuracy is greatly improved when the mentor text teaching model is used in a writing class (Ghorbanchian, Youhanaee & Amirian, 2019; Liaghat & Biria, 2018; Tabrizi, 2017). Premont, Young, Wilcox, Dean, and Morrison (2017) found that with the use of mentor texts, high school students not only enhance their writing abilities, namely word choice, sentence fluency, and conventions, but also improve self-efficacy in writing. Students' writing interests, motivation to write, and

self-efficacy in writing are reported to be increased when mentor texts are employed during writing instructions (Turner, 2015). Different from these studies, I conducted this action research to explore in what ways mentor texts emotionally and academically support Chinese ESL students' writing rather than to determine the effects of mentor texts.

Methodology

To better understand how mentor texts emotionally and academically support my ESL student's writing, I employed the research methodology of action research in this study. Action research is defined by Kemmis and McTaggart (1988) as the following:

> Action research is a form of collective self-reflective enquiry undertaken by participants in social situations in order to improve the rationality and justice of their own social or educational practices, as well as their understanding of these practices and the situations in which these practices are carried out. (p. 1)

In bridging the theoretical ideas presented in the literature review into my teaching practice, through this research, I aimed to understand: 1) How mentor texts can be used to emotionally support ESL learners' writing; 2) How mentor texts can be used to improve students' writing coherence; 3) What aspects of mentor texts affect ESL students' writing.

Participant

As mentioned earlier, John came from China and was in a Test Prep class I observed in the fall semester of 2014. He just graduated from a Chinese high school and was supposed to come to San Diego to study undergraduate at the University of San Diego. However, he ended up learning the English language at a local language school called English Language Institute (pseudo name, abbreviated as ELI) because he missed the application deadline. John decided to study the English language at the ELI and then apply for the engineering school of the University of San Diego for the 2015 spring semester. After taking the placement test at the ELI, he was placed in Level 6, the highest level at the ELI. One of the advanced classes he attended was Test Prep, which was to prepare students to take the TOEFL or IELTS.

Through my observations in that class and interactions with John, I found that John was anxious about his English writing because of his dislike toward the standard five-paragraph essay writing. He liked to write creatively by creating pictures before readers. However, he was discouraged to write because his Test Prep teacher told him that his writing was difficult to understand owing to the lack of the standard academic writing format and the awkward use of vocabulary. Particularly, John was so frustrated about the ignorance of his creative writing in his essay "Spring Break" (see Appendix A) that he presented that essay during our interaction. After carefully reading and analyzing his essay "Spring Break" and other several essays I asked from him, I found that John was indeed trying hard to write creative essays, but he sometimes failed to include a clear and well-developed topic when trying to write something creative. Thus, I wanted to work on his writing needs by emotionally supporting his creative writing and improving his writing skills in topic development and coherence.

1st Phase Action and Assessment Plan

After reading John's essay "Spring Break" (see Appendix A), I found that there are dazzling descriptions of details as well as obscure points when he tried to write in an unusual way.

Unlike the third and fourth paragraphs, the second paragraph of his "Spring Break" has no clear topic, but is more like a list of experiences he had in San Francisco.

Intending to emotionally support his creative writing and improve his creative writing skills in topic development, I asked John to not only think about what he thought when he wrote this essay, but also check which part of this essay matched what he was trying to write and which part did not. After this metacognitive analysis of his essay, he was aware of what he could do and what he needed to improve when trying to write good creative writing. John was also asked to rewrite the second paragraph of his essay "Spring Break" and we both evaluated his revised paragraph two, which focused on the economic property of San Francisco.

Next, I introduced mentor texts to John and scaffolded him to use mentor texts to learn how English writers creatively describe details and develop a topic. I used the PowerPoint I created to explain how to use mentor texts to improve his writing: he needed to first comprehend the meaning of the mentor text from the lens of reading like a reader, and then notice how the mentor text author writes and meta-cognitively think why the mentor text author writes in that way from the lens of reading like a writer. After the introduction of mentor texts, in order to enrich the joy and meaningfulness of learning, I shared several pictures of San Diego (the city we lived in) and wrote about it in a similar way that Abha Dawesar writes Delhi in her book *Babyji* (see Appendix B). John was excited about such power of mentor texts, commenting "I LOVE it!" Then I also asked him to write San Francisco which he just rewrote in the revised paragraph two as Dawesar's writing about Delhi. He was satisfied with the mentor text I provided and his rewriting of San Francisco (See Appendix C).

My goal was not only to make him feel comfortable about his own creative writing, but also to improve his creative writing which should have a focused topic and coherent details. Thus, both as a learning process and as an assessment, I provided another mentor text from Henry Beston's *The Outermost House* (see Appendix D) to further support his creative writing. However, John told me that this mentor text is too difficult for him to imitate and learn. Then he chose to rewrite his fourth paragraph of "Spring Break" and his rewriting is included in Appendix D.

2ⁿᵈ Phase Action and Assessment Plan

Reflecting on the first phase, I continued the use of mentor texts to give John more emotional support in English writing and improve his creative writing skills. The first part of the second phase is to take him to go around his dream undergraduate school, the engineering school of the University of San Diego. I believed that this visit could not only generate qualia of the engineering school that helps his creative writing, but also enrich the happiness of this creative writing learning. When we stepped into the lobby hall, John was attracted by the droplight that John thought is made of diodes. He was so interested in the droplight that he stood there observing it and took several photos. After observing the droplight for about twenty minutes, we continued our tour of the engineering building while chatting.

The second part of my second phase is to ask John to write the most impressive place or room of the engineering building by taking away creative writing strategies from the mentor text from Henry Beston's *The Outermost House* (see Appendix E). This mentor text I provided is a paragraph that creatively describes a room with a kitchen. We started by reading this

mentor text to comprehend the meaning of the mentor text. After that, I asked him to think aloud, that is, to speak out his thoughts when reading the mentor text. Specific questions for John to think about are: 1) How does Henry Beston describe his room; 2) Why does he write in that way; 3) How would you take away aspects that you think are good from this mentor text? After we discussed these questions, I asked him to adapt the creative writing style of the mentor text into his writing. However, he was so attracted by the droplight that he chose to write about it rather than a place (see Appendix E).

3ʳᵈ Phase Action Plan

In this phase, I changed my goal to improve John's creative writing at the sentence level by using the mentor text sentence. For example, the mentor text sentence could be "the birds plummet from the branches, looping and diving like combat aircraft", which is from Brian Heinz's *Butternut Hollow Pond*. I need to explain or ask him to look up these words in the dictionary, including "looping", "plummeted", "combat" and "aircraft" to make him comprehend the mentor text sentence. After that, I need to ask John to analyze the mentor text sentence as if he is the author of the mentor text sentence. He needs to know the purpose of why the author use comma (how birds plummeted) and what kind of craft element the author use (e.g. simile- looping and diving like combat aircraft, descriptive language- plummets from the branches). After such a comprehensive analysis of the mentor text sentence, John is expected to write a similar sentence. Here is just an example of how John could work on his creative writing from the sentence level. In this phase, I also hope that John could choose what topics he wants to write and what creative mentor text sentence he could find to utilize and learn. Every time he finds a creative mentor text sentence, John could record his creative writing learning process on a sheet of paper as in appendix F, which benefits both him and me to see his improvement in creative writing.

Findings

The findings of this research can be divided into three sections: meta-cognitive reflection, the effectiveness of mentor texts, and from the sentence level to the paragraph level.

Meta-cognitive Reflection. Metacognitive reflection plays a vital role in motivating ESL learners to write as well as improving their writing because meta-cognitive reflection sparks ESL learners' desire to write creatively as published writers and pass on the beauty of a mentor text to their own writing. John learned and applied good writing strategies from a mentor text to his writing by meta-cognitively analyzing his original writing and the provided mentor texts.

The Effectiveness of Mentor Texts. The effectiveness of the use of mentor texts in a writing class is affected by ESL learners' writing interests or the difficulty level of a mentor text. As mentioned earlier, John could not apply writing crafts from the second mentor text in the first phase because the mentor text was too difficult to understand. His attention was distracted by the challenging words, so he could not fully appreciate the beauty of the mentor text. Students' writing interests may affect if the use of mentor text is effective or not. In the second phase, John was so interested in the droplight in his dream school and failed to imitate the provided mentor text. Instead, he wrote about the drop-light that he thought was made out of diodes.

From the Sentence Level to the Paragraph Level. As writing is a long-term process, the use of mentor text in an ESL writing class should start from the sentence level to the paragraph level. After building students' writing confidence or willingness by using mentor texts, ESL writing teachers might start from the sentence level, such as word choice and figurative language, to the paragraph level, such as coherence or topic development. John hesitated about what words to use when he wrote and sometimes used words inappropriately in his writing during both phases. Although he realized that he needed to develop the main idea with supporting details and progress from one idea to another, his word choice made his ideas obscure. Considering writing is a long-term process, I should have slowed down the teaching pace when using mentor text in the class. After ESL learners establish their writing willingness, ESL teachers could use mentor texts at the sentence level to improve ESL learners' word choice, sentence fluency, or figurative language first and then gradually move to the paragraph level to help ESL learners' coherence or topic development.

Conclusion

Because writing is an important but challenging skill, there is a need to understand how to appropriately use mentor texts to emotionally support ESL learners' writing and improve their writing skills. Before employing mentor texts in teaching, ESL teachers should get to know students' learning needs and interests. After knowing ESL learners' needs and interests, ESL teachers should choose mentor texts that match their students' English proficiency level and interests. If possible, ESL teachers should also provide their students with a chance to choose what mentor texts they like to use and what topics they like to write about. While using mentor texts to improve ESL learners' writing, ESL instructors are expected to ask students to meta-cognitively analyze their writings and mentor texts, identify writing crafts or strategies of mentor texts, and think about how to apply these writing crafts or strategies from mentor texts into their writing. Last but not least, as writing is a long-term process, if time is allowed, ESL teachers could start from sentence-level writing (i.e., word choice, figurative language) to paragraph-level writing (i.e., coherence, topic development) when using mentor texts to support their students' English writing.

Appendix A

Spring Break

I would not be able to forget the prosperous and high-tech-surrounding city. I would not be able to forget the majestic and torrential water fall. I would not be able to forget (slip from) my precious memory of the tour to San Francisco.

After staying in the bus for 5 hours from Los Angles, I finally arrived the financial center of Northern California, San Francisco. There are variety of skyscrapers building around the city, especially the twin peaks, which are the remarkable sign of San Francisco. Besides the thriving economy, I also received a strong academic atmosphere, The Stanford University. When I first stepped in the campus, the decorative churches, the green grass, the historical architectures emerged in my vision and I felt infinitely proud of myself though I did not really attend this university.

As I approached the downtown of San Francisco, I visited the famous sighting seeing, The Golden State Bridge. It is one of the longest bridge in Unite States, which always appears from the fog; fortunately, the weather was quite good that day and had no fog. I can clearly saw how long the bridge is and hear transportations rapidly crossing the bridge. When I walked to the middle of the bridge, the place where many people jumped out of the bridge and found the god of death, I looked down and a wind blowed my head which made my frightened because of the horrent distance between the bridge and the river. I wonder how could some daredevils have the braveness to jump out of the bridge.

For traveling, great mountains which make you relaxed are indispensable. Further from the San Francisco city, about couples of hours driving, there is a miracle place called Yosemite National Park. Besides the polished stones, the deep valleys, the most magnificent is the water fall, pouring melted water from 3000 feet height. Revolving moisture, the grand water fall seemingly like an angel wearing a white long dress (petticoat). What surrounding me are oak trees as tall as the trade center, birds flying in the sky and chrysanthemums spreading their fragrance. It seems only heaven can have this peaceful scenery, and I was in the heaven at that time. Not only the water fall gave me comfort, but also the majestic mountains provided me a vivid sense of vision. I was standing the middle between two tremendous mountains, and a breeze blowed my shirt, making a sound like whisper. Staying in the serenity mountain, breathing the pure air, I was meditating: what a life!

So worthy the tour I have experienced, and it would be a treasure enriching my life. It was 6 pm and the sunset still illuminated my way to the destination of the tour: Los Angels.

Appendix B

1st Phase Mentor Text--Abha Dawesar: *Babyji*

Scaffolding to write San Diego

MY ORIGINAL TEXT

- San Diego is nice city. Here has beautiful sceneries attracting tourists to travel, comfortable academic environment welcoming students and scholars to study and romantic stories moving people around the world to tear.

READING LIKE A WRITER

MENTOR TEXT

- Delhi is a city where things happen undercover. A city where the horizon is blanketed with particulate pollution and the days are hot. A city with no romance but a lot of passion.

READING LIKE A WRITER

- San Diego is a city where miracles happen. A city where the coast is zigzagged with cliffs and coves and the sun is shining. A city with no noise but comfortably competitive academic environment. A city with no flaunt but inspiring romantic stories.

Appendix C

1st Phase Mentor Text--Abha Dawesar: Babyji

John's writing of San Francisco

Appendix D

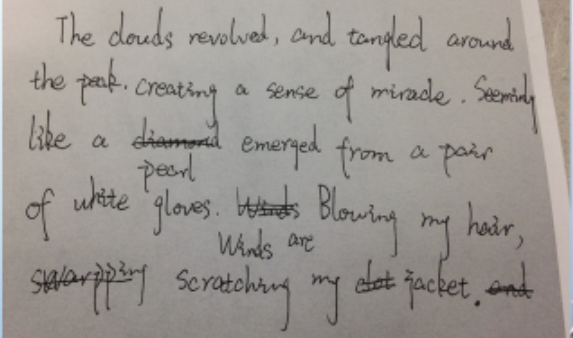1st Phase Mentor Text 2--Henry Beston: *The Outermost House*

John's Writing of His Experience in Yosemite National Park

READING LIKE A WRITER

MENTOR TEXT (P95)

- I walk, and no terns come swooping down at me out of the dunes, scolding me for my instrusion on their immense and ancient privacy; no sandpipers rise at my approach, wheel over the inner breakers, and settle down again a hundred yard ahead.

READING LIKE A WRITER

The clouds revolved, and tangled around the peak. creating a sense of miracle. Seemingly like a ~~diamond~~ emerged from a pair of white pearl gloves. ~~Winds~~ Blowing my hair, Winds are ~~slalarpping~~ Scratching my ~~clot~~ jacket. ~~and~~

Appendix E

2nd Phase Mentor Text: Henry Beston--*The Outermost House*

Appendix F

3rd Phase Mentor Text Sentence

Title of mentor text:
Author of mentor text:
Mentor text possibility: At the sentence level
What do my student need to know "reading like a reader"? (comprehension/vocabulary)
Reading like a writer (editing purpose: grammar, capitalization, punctuation, spelling)
Reading like a writer (revision purpose: Craft elements-metaphors, similes, alliteration, hyperbole etc.)
Student writing example

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Higher Education in India During Corona Pandemic

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Abstract

In 2019, COVID-19 virus swept the globe and wreaked havoc around the world. Many aspects of life have been destroyed by this pandemic including the education sector. In India, after the government declared a countrywide lockdown, all educational activities came to halt, affecting teachers, students and their families as a consequence. The purpose of this study is to find the effect of the Corona pandemic on higher education in India. In addition, researcher will suggest steps to be taken in the education sector to mitigate the effect of this pandemic. This research is based on secondary data. The desk research was conducted utilizing the secondary data from various reports, news, research papers and official websites of government and international organizations. During this research, researcher found that though the government and many higher education institutions wanted to adapt new technologies in effort to maintain academic continuity, already existing inequality in the society made it difficult. In addition, lack of farsightedness regarding plans for coming academic years made problems even worse. Furthermore, education sector may face the problem of less enrollments as the financial capacity of Indian families has shrunk due the pandemic. To solve the issues of higher education created by the pandemic, efforts should be made to make education accessible to all the students, to make inclusive learning solutions keeping the vulnerable and marginalized people in mind, to reform existing system and create cost-effective academic programs. Furthermore, it is important to be prepared to deal with similar situations in future.

Keywords: Higher Education, Covid-19, India

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Introduction

In the matter of few weeks, the COVID-19 virus swept the globe and wreaked havoc killing millions in the following months. Many aspects of life have been destroyed by this pandemic. It prompted countries around the world to implement emergency response systems (Zhang, Wang, Yang, & Wang, 2020). Work from home, lockdown, and social distancing have become buzzwords for last 2 and half years.

Since its emergence in Wuhan, China, in December 2019, the pandemic of coronavirus has created an unparalleled issue to the people and governments of countries around the world in a very short period of time.

In a developing country such as India, with one of the lowest healthcare expenditures per capita, COVID-19 pandemic has been proved to be catastrophic and disastrous, both in terms of lives and livelihoods (The Economic Times, 2020).

Health sector received a massive jolt due to this pandemic and it exposed the weaknesses that were prevalent but hidden up to then. Huge and uncontrollable growth in the number of patients of COVID-19 wreaked havoc in India in second wave. As of 15th Dec 2022, India is the 3rd most COVID-19 infected country with currently 44.1 million infected and 530 thousand deaths (Ministry of Health and Family Welfare, 2022).

Indian economy was already facing a crisis even before pandemic started. Since start of pandemic, this crisis has grown exponentially. The day first lockdown was declared for the 21 days, government warned about a negative economic impact that lockdown will create. The All-India Association of Industries (AIAI) estimates that due to this pandemic, Indian economy will lose $640 million with growth slated to be between 5 and 5.6% till 2022 (Times Now News, 2020; Balajee, Tomar, & Udupa, 2020).

One of the sectors that was deeply affected due to this pandemic is education. The educational sector is very important for every nation as millions of students and teachers are connected within its structure and operation. In many parts of the world, the covid pandemic brought a temporary shutdown of educational institutions. This nationwide shutdown has impacted millions of students and their families also, particularly those from underprivileged communities (UNESCO, 2020).

Higher Education Sector in India

Higher education in India grew very fast since independence. At the present time, India has over thirty-eight million students enrolled in higher education (Ministry of Human Resource Development, 2019). There have been significant changes in the field of higher education during the last three decades. The phenomenal growth in the number of colleges and universities, the high enrolment and turnover of degree holders provide some indication of the progress made (Urvashi,2021). As per the statistics of the Indian HRD Ministry, there are 677 universities, 37,204 colleges and 11443 stand-alone institutions in India as of 2015. Meanwhile, resources for higher education are continuously shrinking.

The Effect of Covid in the Indian Education Sector

After the union government declared a countrywide lockdown of schools and colleges, all educational activities came to halt, affecting teachers, students and their families as a consequence. Nearly 321 million Indian children were affected by this stay-at-home order (Sukumar, 2020).

In the following weeks and months, the government implemented a new plan to mitigate the adverse effects on the educational sector of India. Distant learning using digital platform was introduced. But these plans were not good enough to successfully solve issues created by the sudden lockdown. On the contrary, it made underlying issues more visible in the society. The corona induced lockdown has changed educational sector in many different ways and also it has increased problems at all the levels of education which were already facing various problems even before the pandemic. Also, the educational scenario of the post-COVID-19 outbreak suggests that it will not be easy to manage teaching learning situations in that environment.

The current study will concentrate on higher education only. It is commendable that many higher education institutions responded with prompt adaptation of technology and effort to maintain academic continuity. But already existing inequality in the society has made it difficult to speedy adaptation of new way of teaching.

Apart from that most of the universities do not have the capacity to conduct examination under current conditions. Many of the educational institutions were already in crisis and will be beyond repair if the pandemic continues for the longer term. Public educational institutions will likely become more cash starved in the post-COVID era.

Also, the COVID-19 has interrupted the implementation of the National Education Policy (Lau, 2021). It is an ambitious project outlined for major expansion and internationalization of India's higher education system.

Also, when lockdown started in India, no one might have predicted that it will last so long. So, decisions made by policy makers showed lack of farsightedness regarding plans for next academic year such as admissions and exams. So as the pandemic persisted longer than expected, no concrete new long-term plans could be introduced by related government bodies.

Relevant Issues in Indian Higher Education

The corona pandemic brought a sudden shift in education. Classes moved from classroom teaching to an online mode of teaching and learning. It has affected the teaching and learning process in universities, and colleges. As a result, it has significantly disrupted the higher education sector in India, resulting in both certain positive and negative impacts.

First, because of the lockdown, many institutions chose a digital way to continue their curriculum. But this is not an option for many other institutions. In India, there are still many educational institutions which are not very well equipped with modern technology in the classroom. It is true mainly in the case of universities in rural areas. So, many institutions in rural areas have not been able to operate using digital platforms.

Also, those institutions who have moved their classes to digital platform, could not impart quality education, as the classes were not planned properly, given the short time between notification and implementation.

Second, we can say that with the introduction of a new method of learning through digital means, it has become very easy to the students who have access to the required technology (computer, internet) as they can sit at home and get access to classes from the comfort of their room. But this is not the case for many other students as they had to face different problems such as poor internet connectivity, not being able to afford laptops or a mobile phone. This situation shed light on the fact that India has just started adapting to online learning methods and numerous obstacles remain as the entire population does not have access to the internet, computers or E-learning facilities. Rural people are still deprived of technology.

It might also have contributed to the furthering of existing inequalities in academia. Those who have access to the internet and computer or mobile phones were able to transit comparatively smoothly. Others are left in limbo missing their classes.

This situation clearly illustrates the digital divide within India between the rich who can afford to purchase required equipment and the poor who cannot afford to do so for attending classes.

This divide has even resulted in tragic outcomes for people. As the digital divide has led to the exclusion of students who are poor and relegated to the fringe of the society from digital learning, it also pushed many underprivileged students towards depression and death. Many tragic incidents such as committing suicide have been reported in India (Naha, 2020).

Another issue that students faced was disruptions in the global supply chain which made it difficult and time consuming to get items such as webcams and microphones. So, the quality of online sessions was not without problems for those who could have access to it.

Third, as there wasn't apparent and immediate solution to prevention of the outbreak of COVID 19, college, school and university closures had to be made compulsory to prevent the spread of virus. This has affected more than 285 million young learners in India (Tari & Amonkar, 2021). Students had to face problems as they were not certain about of the future examinations they would face, especially students who were in their final year. Same was the case for those students who were preparing to participate in entrance exam. Though it was unavoidable and circumstantial to close the educational institutions, it became a reason for unnecessary stress for so many students.

Also, when lockdown was imposed and online classes were introduced, university students had to leave their hostels, and either go back home or arrange for alternative living place. While some could manage to arrange, a large number of students were left to fend for themselves.

Also, one of the most relevant questions in this situation is how the admission process would be conducted where entrance test is compulsory and admission is strictly based on the performances made on the test. Millions of students appear in various entrance exams every year in different institutions. It includes India's prestigious and reputed private as well as central universities. These examinations demand students to be present physically in the

designated place. But it wasn't possible for some time as students have high chances to be exposed to the virus. Exam can quickly turn into super spreader event.

The economy worldwide has been severely affected because of Covid-19, and India is not an exception. Its severe effect can be felt in the education sector also. While alternative paths will be available, many will be left in a limbo. Due to job loss, unemployment is predicted to increase and the financial capacity of Indian families will also shrink. So, a drop in new enrolments and continuing of education will be seen. People will feel it difficult to pay tuition fees. Public institutions too, may have to deal with less funding.

Finally, student's mobility and practical exposure through exchange programs, internships, participation in conferences, and more could likely be off the table for some time.

My Suggestions: Road Ahead

Since this pandemic started lots of people are facing lots of problems. Its same in the case of students of higher education. In order to mitigate the issues, all the stake holders should do their role.

Central and all the state governments of India should create strategies to make education accessible to all the students. They should be careful that marginalized, underprivileged and remote sections of the society do not fall behind in getting access to the education. To ensure continuity of learning in universities, it is essential to formulate immediate measures. It is necessary to make inclusive learning solutions keeping the vulnerable and marginalized in mind.

As the internet user will continuously grow and technology will enable access to education even to the remotest parts of the country. This will change the education system in coming days and increase the effectiveness of learning and teaching. It will give students and teachers multiple options to choose from. Many districts of India have already started to adapt these new technologies such as mobile-based learning models for effective delivery of education. Government should encourage with technical and financial support so that it can be adopted by other districts as well. Open-source digital learning solutions and Learning Management Software should be adopted so teachers can use it to teach online.

Subsidy in the cost of Internet is one good way of facilitating the change toward digital education as the monthly cost of internet use is an additional burden for many low-income families.

The Digital divide doesn't show only the gap of access to technology between two groups. It also illustrates the inherent social problems embodied in the overall gap between privileged and underprivileged. This time of crisis should be used as a factor of motivation to bridge this gap which is not at all beneficial for the country as a whole.

With the help of technology, it is possible to achieve universal quality education and improve the outcomes. But in order to make use of technology to its optimum potential, the digital divide (and gender divide) must be dealt with. Access to technology and the Internet is a requirement, not luxury, in the information age.

While changing into digital education, students, teachers, and institutions are bound to face various technical issues. Sometimes computers may shutdown all of sudden while doing video conferencing or Wi-Fi connection may be lost. So, in order to prevent that from happening frequently which would jeopardize the flow of imparting knowledge, every institution should establish a technical support team. Students also need to be in touch with related teachers and inform teachers about the situation if such a problem occurs to them. On teachers' part, being flexible about the situation as such is very necessary. Recording lectures as a backup and providing to students who had issue in accessing during the lecture will be good idea. Understanding each other's situation and issues is of paramount importance.

Also, certification and assessment criteria have to be revised. They should be modified according to the current situation that is not normal. While revising these parameters, it is important to keeping in mind the importance of meeting quality benchmarks. Examination approaches should also be reviewed in order to comply with online teaching demands and requirements.

As the pandemic has affected the economy as a whole and has had a severe effect on education also, it represents a good opportunity to reform existing fee structures and creation of more cost-effective programs. This would help keep students engaged in their academic engagements during the current circumstance.

On the other hand, hundreds of thousands of students who planned to go abroad for further study may have to find alternatives inside India. Current data (Chaudaha, 2019) indicate that India is the second-largest source of international students in the world. This situation may change at least for few years as students might influx into Indian institutions, given travel bans in various countries and potential risks related to health. That means millions of dollars spent as tuition fee and other expenses in foreign countries will be retained in India. It is a remarkable opportunity for Indian higher educational institutions to enhance their capacities and offer quality education with global standards. Also, it is a good time to develop strategies to prepare the higher education sector to engage evolving trends from around the world. Improving the quality of higher education will open opportunities for Indian institutes to attract foreign students in India.

Another related issue is that the opportunities for students to participate through exchange programs, internships, and conferences will not be readily available in the near future. New forms of collaboration between educational institutions across countries are needed to drive teaching, learning, and research. Sharing of knowledge between international institutions around the world will be an increasing necessity. Joint-teaching, virtual guest lectures, and joint projects with students from other countries etc. could give students an enriched global perspective. So, it is the duty of both government and educational institution to make such an interactive environment a readily accessible resource.

Increased digital education also means that students as well as teachers increasingly will not be attending class on a physical campus. Keeping motivation at acceptable levels is new necessity for students given that they won't be physically present within the education environment. Seeing one's own home as a space of work is a struggle that a majority of people will have to face. Keeping students interested in the courses offered in these modes will be an added challenge for teachers, leading to the development and pursuit of more innovative ways of interaction. Staying in touch with classmates, as well as reaching out to

faculty and academic staff as required will be an increasing necessity for a complete educational experience.

The next phase will be to move to a structured rebuilding of courses. Managing the online engagement of students will be very important. Elements of this will include breaking down course content of into more manageable parts so that students will be able to complete the course within the rage of their available resources. Also, the credit system needs to be revised for online courses. Mixed sessions combining face-to-face and online modalities should be allowed.

One important step will be developing open-source learning resources. Many such platforms are already available which provide courses across a range of topics. If universities and government can create undergraduate level or graduate level courses for wide variety of subjects, it will go a long way in transitioning to online teaching and learning. The development of such courses will require extensive capacity building including training of staff and faculty.

The social side of the university experience for students is something that cannot be replicated in this situation. However, universities can create virtual social events in which students can participate. The creation of virtual forums to support students as well as faculty members in matters such as mental health is also very significant for the effective function educational institutions under these circumstances.

In light of the anxiety created by the corona virus, creating virtual health forums for students is equally important. Teaching them how to look after themselves and the people around them in this time of crisis through webinar engagements will be a good move. Career coaching sessions should be conducted with the help of a team of alumni and/or professionals. This can be done by universities as well as related governmental bodies. University staff well-being is equally important. Consequently, universities should actively keep track of how their employees are holding up within pandemic circumstances. Regular meetings, counselling sessions and surveys regarding their well-being all are useful tools to be employed in this regard. A "WhatsApp" group of Vice-Chancellors of universities can also be created that would enable the sharing of ideas, strategies, and experiences.

The pandemic will have effects not only on the education sector but on jobs that are also related to education. Given this linkage, practical policy measures are needed to lessen the effects on job offers and internship programs so that students can be kept motivated to complete their studies.

Conclusion

There is no doubt that higher education is facing a very important challenge in the form of corona virus pandemic. In many ways it has served to speed up changes that were bound to happen sometime in the future. Given this, the overall situation can be seen as an opportunity as well as a challenge. However, one chooses to view this and however the overall situation, it may be described, it is certain that this situation has made it compulsory to move forward with change in this field.

How related institutions (educational as well as governing) will react to this situation will define what path higher education will take in India. It is desirable that India prepare itself to

move to a next stage of development in this sector. In order to do that, all related stakeholders will have to participate actively. Though university and policymakers' roles are of paramount significance, other stakeholders--students, parents and society as a whole—cannot ignore their roles. Neither they should be denied opportunities for active participation.

As education is a vital sector of any country in the world and fully engaged in planning according to their capability to move forward, India in particular should also adopt and plan new programs and policies in order to minimize the academic loss of students during the pandemic and to move a step forward towards new paradigm of online education.

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Blended Professional Learning Community Sessions on Action Research

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Abstract
Action Research (AR) has shown a significant contribution toward improving teacher practice. Challenges in its conduct have led to teachers' struggle in completing such projects. Professional Learning Communities (PLC) had created an improvement in participatory transformation in teaching through collaborative learner-centered solution-making. Thus, the Action Research Professional Learning Community named "*SAHA*" was formed to address the gap. Teacher-members in Catanduanes National High School (N=15) participated in the blended sessions (synchronous and asynchronous) to improve their capacities in conducting Action Research (AR). The framework for training AR employed the Plan-Do-Study-Act (PDSA) model and a descriptive mixed-method approach was used. ARPLC members' experiences culled from interviews, focus group discussions, open-ended questionnaires, and journal logs were thematically analyzed. The Perception on Action Research Questionnaire (PARQ) was used to measure AR competence at the end of the training. The ARPLC experience showed positive effects on the teachers' attitude and understanding of AR as depicted in their improved collaboration and reflective thinking skills.

Keywords: Professional Learning Communities, Action Research, Action Research Competence, Conducting Action Research, Professional Development, Teacher Training

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Introduction

Training teachers on the conduct of Action Research (AR) is of prime importance in improving professional practice. It has been revealed that AR may be a part of Professional Learning Communities (PLC) (Ahlawat, 2015; Mamlok-Naaman, 2018) that encourage collaboration through inquiry into refining teaching practice. AR practices investigation on a pragmatic view of teaching by testing new solutions to problems (Clark et al., 2020). Thus, teachers must be capacitated on the conduct of AR. In this study, we will describe the experiences of teacher participants during the training and the competencies developed after.

Action research is a research methodology that aims in improving one's professional practice by attaining self-awareness in achieving positive change (Brydon-Miller et al., 2022; Magalong & Prudente, 2020; Prudente & Aguja, 2017). Klima (2020) showed AR's impact on professional development where it was revealed that shared leadership is developed as participants shared accountability towards their respective projects. It is also to note that the affective aspect is developed through a reflection of the progress that shows AR's contribution to the teacher's professional growth and developing a solution framework for implementing interventions to encountered problems (Erro-Garcés & Alfaro-Tanco, 2020). Additionally, AR practice improved relationships and management within the practicing organizations (Ollila & Yström, 2020).

Professional Learning Communities have anchored on the social learning theory wherein the researchers believe that encouraging interaction among teachers about their learnings in the sessions can create knowledge and meaningful constructs on learning (Brodie & Chimhande, 2020; Lave & Wenger, 1991; Wennergren & Blossing, 2015). DuFour (2015) expands that PLC is all about the individuals sharing a common practice and process that entails improving learner of all learners thus a sustainable system of practice should be established and continuously require testing and evolution to fully achieve its primary goal (DuFour & Fullan, 2013). Understanding learning is a result of developing collaboration of ideas among individuals trying to achieve their goals. This introduces teachers to an atmosphere of shared interest and identity that leads toward a commitment to the cause of the PLC (Wenger, 2011). Penuel et al. (2017) would further conclude that the diversity of the community should be considered as a benefit towards the enrichment of learning as dictated by the theory. They further iterate that the differences presented in the social learning environment should be considered as an opportunity to understand adapting and create solutions in practice.

The Philippine Department of Education institutionalizes as presented in its mission on improving learning and pedagogy through research and development. DepEd Order number 39 (2016) presents the adoption of a departmentwide research agenda to support the need for evidence-based decision-making for the department. It advocates solving challenges faced in teaching and learning, child protection, human resource development, and governance through research. The ultimate goal is to respond to the gaps in the system through research-backed decision-making (DepEd Order No. 16, series 2017). Submitted papers go through intensive screening through a committee that checks whether the paper fits DepEd's priority initiatives for innovation (DepEd Order No. 16 Research Management Guidelines, 2017). As a result, technical assistance would be provided by the department to potential teacher researchers.

This led to its induction to Catanduanes National High School, a local Mega-Category high school in the Catanduanes Island, Philippines, as part of its program in achieving 2 primary

goals: First, is to be able to foster a sustainable community that would tackle problems among learners through collaboration, and Second, increase participation in AR outputs in the said school. This was driven by national policies of the education department and the recent statistics of low turnout of AR in the school despite being a large institution. Hence, *SAHA* (a local word for 'sprout) was introduced as an Action Research Professional Learning Community (ARPLC) program focused on the conduct of AR during the pandemic. *SAHA* is a PLC that met online and in person which discussed the conduct of AR aligned to problems learners met during the pandemic. Sessions were conducted over 13 weeks where teacher perception of AR and experience with *SAHA* was probed using a mixed-method design.

Methods

The goal of the *SAHA* is to develop reflective teachers through blended sessions (Face-to-Face and Online) that served as platforms for teachers to interact and support each other during the training process. The Plan-Do-Study-Act model was adapted in implementing this study. A collaborative action research design using a mixed-methods approach investigated the competencies and experiences of the teacher participants.

Creation of the Blended AR PLC

A request on the conduct of *SAHA* was sent and approved by the school administrators of Catanduanes National High School, and the Schools Division of Catanduanes. Letters of invitation among AR experts were sent to aid in sharing their practices in the conduct of AR. An open invitation for the first session was endorsed by the school principal with the condition that basic health protocols were followed. Volunteers walked in during the first session which determines the first participants of the PLC. During the first session, participants were introduced to one another and oriented on the PLC framework that will be used during the Blended PLC Sessions.

Blended AR PLC Framework

The blended approach framework adopted by this study is divided between face-to-face sessions and asynchronous sessions. Face-to-face and online synchronous sessions run for a minimum of 2 hours once every 3 weeks or earlier, depending on the availability of PLC members. Figure 1 presents the flow of the PLC session that occurred. In every session, a circulating teacher facilitated the discussion. The session properly involved invited lecturers and teacher-researchers from Catanduanes who have completed AR projects (Figure 1). Every synchronous session started with a recapping of the previous discussion which involved journal entries of the participants. Then, the teacher participants shared their experiences on their previous AR projects conducted. Afterward, the invited speakers discussed the processes involved in conducting AR. The session was designed to encourage discussion of ideas through "milestone questions". This is to gauge the understanding of teacher participants and reflect on how the learnings can be applied in their practice. A session workshop is done after the discussion to encourage practice and mentoring. Through *SAHA*, the teacher participants decided on the next goals and had discussions on what will be happening in the next session. To conclude the training, teacher participants provided feedback on their training experiences.
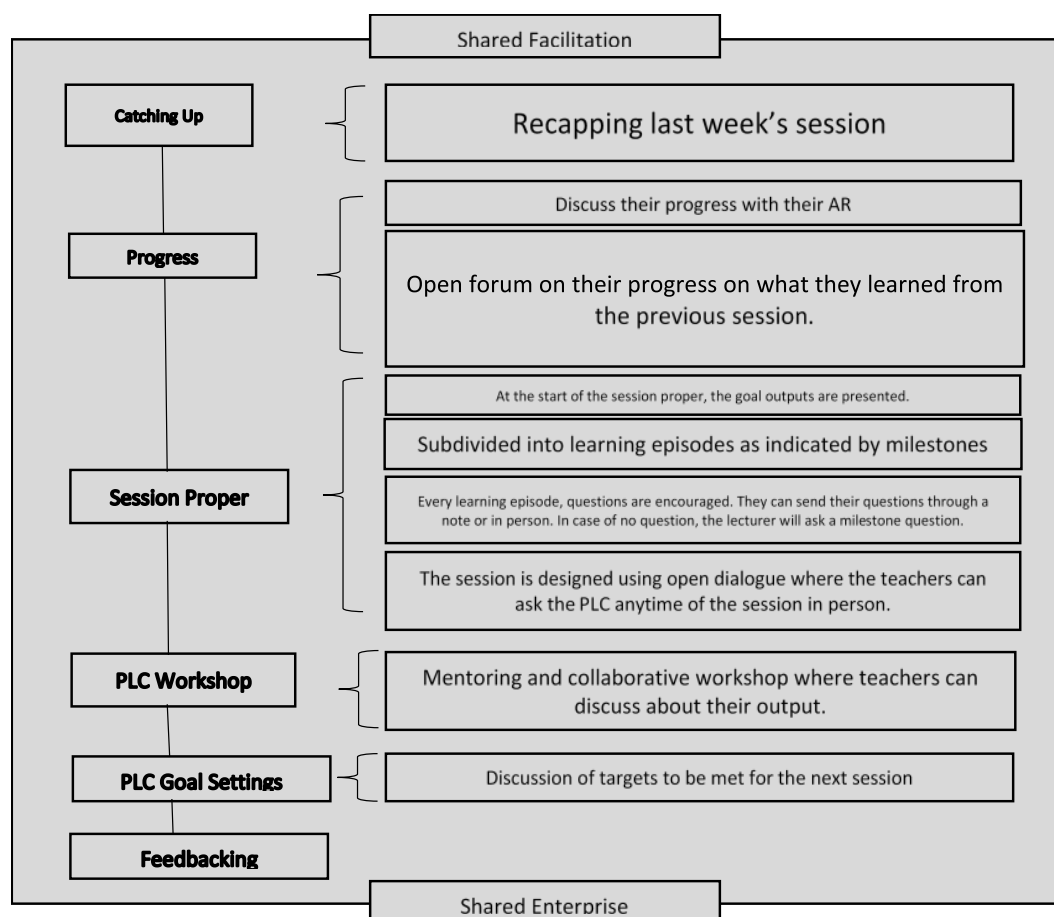
Figure 1. Synchronous Sessions

The asynchronous sessions were conducted through the use of two online tools using an online classroom through Google Classroom© and a dedicated communication line via a Messenger© Group Chat. The online classroom provides the recordings, materials, and announcements. It also serves as a discussion board among PLC members regarding their submissions. While the group chat serves as instant communication where PLC members are free to open up quick discussions and reminders in case members haven't seen the online classroom discussion board.

Quantitative Data Collection and Analysis

Quantitative data was collected through the use of google forms which includes the survey using the Perception on Action Research Questionnaire (PARQ) (Prudente & Aguja, 2017). The link to the survey was sent through the group chat and discussion board in the online classroom. The results were collected and recorded using a spreadsheet. Quantitative Data is collected through printed sheets of the tools used for gathering the responses of the teacher participants. Responses are then transferred to an electronic spreadsheet for checking and validation. Statistical analysis is then conducted with the use of a trial version of IBM's SPSS© software.

Qualitative Data Collection and Analysis

The first part is done online with the use of google forms which includes the survey using the Professional Learning Community Open-Ended Questionnaire (Yarbrough, 2010) which

collects qualitative responses regarding their SAHA experiences. The second part is the in-person collection part was conducted using a focus group discussion conducted at Catanduanes National High School. Questions asked in the discussion were adapted from the PLC Interview Focus Group Questions (Hoffman et al., 2009). Two FGD sessions were conducted accommodating the availability of the members. Each session runs for an average of two hours as requested by the teacher participants. The FGD is video recorded and then transcribed using a text editor. Additional qualitative data was extracted from the discussion board, group chat, and teacher participant journal notes.

To compile and analyze the qualitative data collected in this study, journals, recordings, and interview notes were used. Atlas.ti software is used to sort, code, triangulate, and arrange data. Thematic analysis protocol developed by Braun and Clark (2014; 2019) was used in the interpretation of qualitative data. Initial *In Vivo* (Saldaña, 2021) coding was used where afterward using the network facility of the software, a re-reading of the transcripts was done. A second coding used an Open approach where *In Vivo* codes are arranged again against the open coding. Initial themes were created and another rereading of the transcripts was conducted to further refine the themes emerging from the analysis. The validation method used with qualitative data is using triangulation of data from Professional Learning Community Open-Ended Questionnaire responses, FGD, interviews, discussion boards, online group chats, and teacher participant journal notes. Further validation was done through member checking (Carlson, 2010; Varpio et al., 2017).

Results and Discussion

Five PLC sessions were conducted within the planned given time. From the initial enlisted 22 teachers who attended the first session, at the following sessions till the end only 15 teachers remained in the training. Table 1 presents the demographic profile of the participants.

Details	f
Sex	
Male	3
Female	12
Position	
Special Science Teacher I	1
Teacher II	1
Teacher III	10
Master Teacher I	1
Master Teacher II	1
Assistant Principal	1
Department	
Junior High	2
Senior High	13
Major	
English	4
Filipino	2
Mathematics	4
Science	2
Technical Vocational	3

Table 1. Demographic Profile

Perceptions of Action Research

Action Research Principles

On the first component on perceptions towards AR principles, most of the items were positively perceived by the teacher-researchers except for the item on "An action plan is needed in trying out the improvement theory." as 7.70% of the teachers disagree with the item as presented in table 2. The average score garnered in this dimension is $\bar{X} = 3.59, \sigma = 0.514$.

Action Research Principles	SD%	D%	A%	SA%	$\bar{X}$	σ
Action research is done within the context of the teacher's environment.	0.00	0.00	30.77	69.23	3.67	0.49
Action research is a challenging endeavor	0.00	0.00	38.46	61.54	3.58	0.51
Action research aims to explain why we do things	0.00	0.00	46.15	53.85	3.5	0.52
Action research links educational theory with professional practice.	0.00	0.00	30.77	69.23	3.67	0.49
Action research is focused on studying one's practice brought about change.	0.00	0.00	38.46	61.54	3.58	0.51
Action research involves collaborative methods to generate data that inform changes in practice.	0.00	0.00	38.46	61.54	3.58	0.51
The conduct of action research is a good measure of the teacher's professional commitment.	0.00	0.00	38.46	61.54	3.58	0.51
An action plan is needed in trying out the improvement theory.	0.00	7.69	23.08	69.23	3.58	0.69
Results of action research studies should be shared and disseminated.	0.00	0.00	30.77	69.23	3.67	0.49

Table 2. Percentage of Responses on Action Research Principles

Attitudes toward doing Action

The calculated mean for this dimension is $\bar{X} = 3.16, \sigma = 0.84$ shows the general agreement on most of the items. Items marked with* are the negative items asked in the questionnaire. The first four items are agreed upon 100% by the teachers which probe into their positive attitude towards doing action on their practice of teaching through AR. Similarly, the same observations are seen with the item "Through action research, teachers become professional knowledge makers." and "I am convinced that doing action research can improve my teaching practice." However, item 7 which is a positive item presented mixed results. On "Teachers are given enough training on how to do action research.", more than half of the teacher trainee disagrees (Table 3).

Negative items also presented a different perception among the teachers. Items "Planning for future instruction is the end of the cycle for action research.* and "Teachers cannot find the time to do action research.*" presented more than 50% of the teachers disagree with the statements. While the item "The amount of work I do in school prevents me from doing action research.*" 77% of the teachers agree on this. Table 3 enumerates the detailed findings of this section.

Attitudes toward doing Action	SD%	D%	A%	SA%	$\bar{X}$	σ
I find enjoyment in trying out new things in teaching.	0.00	0.00	53.85	46.15	3.5	0.52
I believe that doing action research is part of my duties as a teacher.	0.00	0.00	38.46	61.54	3.67	0.49
I have a positive feeling that by doing action research, I can become a more effective teacher.	0.00	0.00	53.85	46.15	3.5	0.52
Doing action research can be emancipating for the teacher.	0.00	0.00	61.54	38.46	3.42	0.51
Planning for future instruction is the end of the cycle for action research.*	15.38	38.46	23.08	23.08	2.67	0.98
Teachers cannot find the time to do action research.*	23.08	38.46	23.08	15.38	2.42	0.99
Teachers are given enough training on how to do action research.	15.38	38.46	30.77	15.38	2.5	1.00
Through action research, teachers become professional knowledge-makers.	0.00	0.00	69.23	30.77	3.33	0.49
I am convinced that doing action research can improve my teaching practice.	0.00	0.00	38.46	61.54	3.67	0.49
The amount of work I do in school prevents me from doing action research.*	7.69	15.38	53.85	23.08	2.92	0.90

Table 3. *Percentage of Responses on Attitudes toward doing Action*

Processes Involved in Doing Action

Table 4 shows that 11 items were developed for this section where five items were framed negatively. Positive items 1, 7, 9, and 10 were 100% agreed upon by all of the teachers participating in the PLC. Other positive items received varied levels of agreement. For items 4 and 5, 7.69% of the teachers, or equivalent to 1 of the teachers do not agree on these items.

On the other hand, the negatively framed questions are not entirely disagreed with by the teachers. The item "A concept test is enough evidence to measure learners' understanding.*" showed sixty-one percent disagreement. However, the remaining negative items received an agreement rating of more than sixty percent. This dimension got a mean of $\bar{X} = 3.14, \sigma = 0.89$.

Attitudes toward doing Action	SD%	D%	A%	SA%	$\overline{X}$	σ
Action research starts with assessing the current situation.	0.00	0.00	53.85	46.15	100.0	0.00
Action research aims to investigate learners' behavior. *	7.69	23.08	46.15	23.08	69.23	30.77
Action research follows an iterative process.	7.69	0.00	61.54	30.77	92.31	7.69
Reflection is done in all the stages of the action research process.	0.00	7.69	23.08	69.23	92.31	7.69
A concept test is enough evidence to measure learners' understanding. *	15.38	46.15	30.77	7.69	38.46	61.54
In analyzing the effects of the action implemented, it is necessary to have quantitative data as evidence. *	7.69	23.08	46.15	23.08	69.23	30.77
Action research follows a linear process. *	7.69	30.77	23.08	38.46	61.54	38.46
The action plan is based on the root causes of the problem of practice.	0.00	0.00	53.85	46.15	100.0	0.00
Action research involves the implementation of predetermined answers. *	15.38	7.69	61.54	15.38	76.92	23.08
Action research improves educational processes through change.	0.00	0.00	46.15	53.85	100.0	0.00
Researchers doing action research articulate the process of reflection in their discussions to allow others to follow the sense-making processes.	0.00	0.00	30.77	69.23	100.0	0.00

Table 4. Percentage of Responses on Attitudes toward doing Action

Perception of Blended AR-PLC

Blended AR-PLC vs Traditional Faculty Meetings

Teacher participants pointed out in their responses that immediate differences between PLC and traditional faculty meetings (TFM). TFMs are described to focus on the organization and less urgency is given to pedagogical outcomes among learners.

> *[JT] PLCs talk about contents related to pedagogies most of the time while faculty meetings seldom do this. Faculty meetings are concerned more with organizational issues. [JT] PLCs talk about contents related to pedagogies most of the time while faculty meetings seldom do this. Faculty meetings are concerned more with organizational issues. [CC] PLCs are goal-driven and time-bounded while TFMs are lax. [CT] PLC is different from the regular meeting because it sets a community of practice toward achieving a group goal.*

Members had able to elaborate on the difference between PLC experiences with TFM. The responses of the members reflected the 'Big 3' principle (DuFour, 2015) wherein within the duration of the sessions, teachers had able to experience PLC's focus on learning through professional development, and collaborative discourse which able for teachers not only to participate but also contribute in a growing shared knowledge and enterprise.

PLCs created a distinct difference from TFMs as teachers are encouraged to be part of the solution process which empowers them to create new ways of teaching and learning based on what is happening within the different dimensions of the school (Stegall & Linton, 2012). This breaks away from an organizational or political-centric direction of discussions that is beyond the teacher's concern which causes disconnection of teachers to TFMs agenda and

transforms to a mutually shared responsibility to improve learner results through collaboration and AR activities where everyone is encouraged to be part of the discourse (Howard, 2022; Masson & Zajontz, 2022).

Building a Culture of Collaboration

All of the teacher members agreed on the nature of the PLC made them collaborate and establish partnerships forged during the session creating a sense of shared enterprise and culture as their identity. This is evident with the name they gave for the PLC, '*SAHA*' which is Catanduanes word for 'Budding' or 'Sprouting' as they treat themselves as young sprouts of research which also shows the member's way of expressing their relationship with one another as a group (Kondo, 2019; Tam, 2022). The members further express how the exchange of ideas beyond AR comes from providing an accommodating environment among the teachers in the PLC (Gore & Rosser, 2020).

> *[JT] They eagerly shared their knowledge and expertise. [JM] A give-and-take process where you can freely learn something and input ideas as well. They mentor and share their inputs and their expertise during discussions and forums. [CS] I strongly agree that everyone's concerted effort is a must for its fruition. [JV] They shared their best practices and problems as well for the novice teacher. [NU] [Members] Based on their experiences with the problems they met in teaching their subject.*

Collaboration is exhibited with the nature of inclusion as teachers of all experience levels were accommodated and allowed members to be guided in AR. This created unique relationships among members that led to mentoring and new networks within the school which led to collegial trust among the members (Huijboom et al., 2021). Furthermore, it encourages motivation and continuous participation in the practice of PLC.

> *[JV] It is beneficial on my part as I see the possibilities of 'Oh this is how it works'. My old conception is that AR was difficult, only to realize it is not. So with Saha, most of my participation is I have realized it is not difficult and you don't need to be alone when conducting AR. So you will be guided by the Saha. So guided. This is what is missing [with TFM] that I liked with Saha. Because when I conduct my AR there's this group that can help me on the way and helps me to realize on things like JFT mentioned can improve student outcomes.*

The last sub-theme emerging in Building Culture of Collaboration is the willingness of the PLC teachers to engage in critical reflective thinking as a community (Gore & Rosser, 2020; Sæbø & Midtsundstad, 2022; Tam, 2022). As mentioned, all of the members are encouraged to share their experiences and outlook on the session which gives rise to reflection on practice among teachers.

> *[CC] Brainstorming ideas is productive and impactful. [RS] There is the pooling of ideas. We throw in questions: 'How do you conduct this' then someone will solicit their solutions. You may have solutions but you are in a dilemma on how to implement them since it is even a personal struggle with SAHA we were able to make it work. We can build our solutions and turn them into our own AR proposal.*

Focusing on Facts and Solutions

Approaching concerns on improving student learning, teachers discuss common problems that arise in the teaching-learning process. The PLC has been conceptualized as a teacher intervention that focuses on improving learner participation and learning as part of its goal during sessions (Moulakdi & Bouchamma, 2020). Similarly, the purpose of AR is to be able to improve teacher practice which results in better learners had been supported by the construct behind PLC (Gibbs et al., 2017; Puhakainen & Siponen, 2010).

> *[JT] It provided me with a strong foundation in conducting action research not just for the sake of innovation but making sense of the available data to come up with a strategy and solution to an immediate concern. [CG] Produce more action researches that will be beneficial to the students, school, and the community as a whole. [JFM] I encourage teachers to attend Saha because promotion-wise, they need to conduct AR, also it helps improve the teaching and learning process, especially during the pandemic. It helps such that small problems encountered are given additional interventions [nods head] which is great. So I told myself, ah, it [SAHA] benefits us in helping solve our problem on ICT [TVL course] during the pandemic, which requires the practice of the skill. So, Saha can provide an answer through AR. [CC] So the [classroom] problem is always considered however how we come up with solutions is a challenge. You need to think of a solution and it is difficult as you need to be specific on the breakdowns of how it is being developed. Through the sessions and being strict about data, we were guided on how to be better at designing interventions. [JV] We were recommended that we should consult the baseline data, which in turn we could think about how to use its leverage to our methodology. 'Oh,' then we realized it is possible to do this. Before we weren't aware of this, at least through Saha we were able to create ways how to use these available data to create action research.*

Furthermore, solutions are not one-dimensional due to the continuous input of the members had led to a deeper understanding of the importance of different disciplines and experiences in teaching and learning (Liu et al., 2022) through a positive culture (Henderson, 2018).

> *[ES] The beauty of the sessions is even though you are the one developing the [AR] proposal, the members can contribute to improving my solutions. [CC] We also have members who previously engaged in AR and based on their accomplishments, we can gather ideas to polish our work.*

Reflective

The session presented a reflective atmosphere as manifested by the responses of the teachers. Self-evaluation, realizations, and assessments are an indication of personal reflection which are both characteristics of AR (Brydon-Miller et al., 2022; Prudente & Aguja, 2017) and PLC (Çopur & Demirel, 2022; Sæbø & Midtsundstad, 2022). The reflective nature of the session also triggered self-regulation as they recognize their growth and needs in AR (Hsiao & Lin, 2022).

> *[JM] [The sessions] reminds us. Our present sessions make [sic] us reflect on what we should be our scope, and what steps we need to take as part of our process. With that, we are reminded of 'So today we talked on this' which in turn makes us think*

about what we could do better [in teaching]. I reflected on my capability as a teacher-researcher. [JOM] It made us develop our research skill and reflect it in teaching. [HV] I was able to come into a wider perspective about the things that I can do as a teacher.

Conclusion

Perception on Action Research showed that on average the members of the PLC agreed on the positive statements of the questionnaire. The action research principles dimension notably has members strongly agreeing on all the statements. This prevents the impact of the Blended PLC towards the understanding and correcting misconceptions of members towards the conduct of AR in the practice of teaching. However, some of the members are still struggling with the negative items as shown in the results which is further reflected in the qualitative analysis of the data.

Members had able to distinguish the difference between PLC to Traditional Faculty Meetings (TFM). They were able to establish a sense of shared commitment and responsibility in improving student learning through their experience of collaboration which led to a multidisciplinary approach to creating innovations. These innovations in turn abled the members to create their AR which is the main objective of the PLC. Teachers in the PLC focused on analyzing current data as the basis of their actions and improvements. Moreover, the reflective critical dialogue had been developed during the sessions among the members. Though the online component of the PLC had shown a positive contribution to members who are unable to catch up in some of the sessions, suggestions on improving the immersive experience were given. Lastly, challenges that are wished to be addressed by the members are the involvement of administrators in supporting members on their AR, monitoring, reassessing workloads, and financial support.

Acknowledgments

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Challenges Encountered by Non-araling Panlipunan Teachers Teaching Araling Panlipunan Department of Education General Santos City, Philippines: Basis for Capability Building

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Abstract

This study intended to describe the challenges encountered by Non-Araling Panlipunan teachers Teaching Araling Panlipunan (AP). It sought to identify the coping mechanism, interventions and identify capability building programs as a solution to the problems. The study employed qualitative phenomenological research to examine individual life experiences of Non-Araling Panlipunan Teachers who have specialization-workload mismatch. Key informants underwent an in-depth interview using open-ended questions. The data collected where translated and analyzed, unveiling fifteen primary themes from the narratives of the participants. The challenges encountered by the non-Araling Panlipunan teachers who are teaching AP are the following: For content: making learning relevant and engaging, unfamiliarity, lack of knowledge, double the effort and adjustment. For lesson preparation: uncertain and at a lost; finding the perfect fit; shift code; learning resource inadequacy and identifying the essentials. Content-realignment woes and Higher Order Thinking Skills (HOTS) dilemma are the challenges encountered in terms of assessment. The participants coped with these challenges by equipping themselves, maximizing the learning and online tools, and calling a friend. Schools provided interventions like continuous training, earn relevant units and Learning Action Cell (LAC) session as an avenue to mentor non-Araling Panlipunan teachers. Non-Araling Pteachers handling AP are facing problems which their adaptability. With the right amount of support from external factors, schools and internal motivations like passion, initiative, flexibility and open-mindedness, problems in teaching will be lessened. The research proposed that the Department of Education conduct a training on content and pedagogy to equip non-Araling Panlipunan teachers in the field.

Keywords: Araling Panlipunan, Social Studies, Teaching Challenges, Mismatch

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Introduction

With the emergence of borderless human interaction, individuals develop a sense of camaraderie and conformity in solving complex problems and making decisions, with the aim of achieving a common goal. Conformity to global standards of politics, culture, economy, and education has thus been observed to dominate the global stage. In the educational environment, there has been a growing emphasis on a more progressive educational system, which has led to other areas of concern, such as the need for qualified teachers to instruct students. According to researchers, teacher quality is one of the most important aspects of the educational process because it has a significant impact on student achievement. Therefore, quality teaching should be a requirement in all educational institutions. The credentials of faculty have been identified by Akareem (2012) as one of the components of quality education. Diverse curriculum designers recognize this need and have been developing worthwhile programs in response for years. Section IX of Batas Pambansa Blg. 232, also known as The Education Act of 1982, guarantees the right of students to receive competent instruction and relevant quality education in the Philippines, in accordance with the unified call for a superior education. In addition to having access to adequate facilities, teachers' abilities determine the quality of an education.

According to the No Child Left Behind Act of 2001, in order to be a qualified educator, one must possess a bachelor's degree and demonstrate competency in the subject they will teach. By offering graduate degrees and college majors to education students, universities and colleges ensure this proficiency. Despite this work for proficiency and global movement to ensure quality teachers, educational institutions are frequently confronted with pressing issues involving teachers. In the workplace, educators are subjected to a variety of conditions that lead to the ongoing problem of out-of-field-teaching. According to Robinson (1985), this phenomenon, known as teaching across specialization or out-of-field teaching, in which teachers teach subjects for which they have limited training or knowledge, has been observed for a long time but is largely unrecognized by administrators. According to Hobbs (2013) and Caldis (2017), out-of-field teaching occurs when a teacher teaches a subject for which they are not qualified. According to Loveys (2011) and Silva (2010), non-specialty teachers are untrained or unqualified. This paper will use Inggersoll and Gruber's (1996) definition of out-of-field teaching as a phenomenon in which educators are required to teach a subject in which they did not specialize during their teacher preparation. According to Dee (2008), the origin of out-of-field teaching can be traced to how schools and teachers are managed for teacher assignment, which is the responsibility of school administrators.

A shortage of teachers in certain subject areas, such as Filipino, TLE, and Araling Panlipunan, is also identified as a primary cause of this issue. Particularly in General Santos City, there are no universities that offer BSED-Social Science. If left unaddressed, this issue could continually hinder the efficacy of Filipino educators. Here is where research comes into play. It focuses on the effects of out-of-field teaching on the performance of non-Araling Panlipunan teachers in the Division of General Santos City who teach Araling Panlipunan. According to this study, non-Araling Panlipunan teachers are those who hold a Bachelor of Science in Education in a major other than Social Science. As a subject that necessitates in-depth knowledge of facts, history, and current events, it is essential that teachers of the aforementioned subject be armed with the necessary tools to ensure effective instruction. As the K-12 curriculum in the Philippines evolves, high expectations are placed on Araling Panlipunan teachers. Araling Panlipunan teachers are expected to assist students in comprehending the significance of history in one's life; therefore, they must successfully

engage students in meaningful discussions on past and present events. This is only possible if the teacher has a genuine appreciation for the subject. As a result of the emergence of out-of-field teaching, these non-social studies teachers who handle Araling Panlipunan may encounter a variety of difficulties in their daily teaching practice. Moreover, it would be difficult for teachers to teach a subject in which they lack confidence because they have little or no background, which could result in a heavy reliance on textbooks that will hinder and limit students' learning experience. Taking all of these factors into consideration, the researchers wish to describe the problems and the effects of out-of-field teaching on the experiences of teachers and their coping mechanisms when confronted with the problem. It is believed that the research is appropriate and pertinent to the current state of education in the Philippines, which aims to be on par with other nations. This aims to investigate the various school interventions as well as the personal interventions utilized by these teachers to mitigate the problem. The purpose of this research is to assist teachers in minimizing the difficulty of imparting knowledge to their students and bolstering their confidence when delivering lessons. This will also aid school administrators in managing their teachers to improve the teaching experience. The research also intends to aid government agencies such as the Department of Education and Commission on Higher Education in developing their seminar frameworks for managing teachers.

The main purpose of this study is to describe the challenges encountered and its effects of out-of-field-teaching on the performance of Non-Araling Panlipunan Teachers who are handling Araling Panlipunan. Specifically the study seeks to answer the following questions:
1. What are the challenges encountered by Non- Araling Panlipunan Teachers in terms of:
    1.1. Content?
    1.2. Lesson Preparation?
    1.3. Assessment?
2. What are the different school's intervention regarding the specialization-workload mismatch?
3. What are the coping mechanisms of these teachers in order to survive in this kind of environment?
4. What capability building programs that can be designed as a solution of the problems identified?

Research Methodology

This qualitative phenomenological study will examine the individual life experiences of Non-Araling Panlipunan Teachers with a mismatch between specialization and workload. For this study of a small number of non-Araling Panlipunan teachers who teach Araling Panlipunan, phenomenological in-depth interviews were chosen as the data collection technique. According to Rossman and Rallis (1998), the purpose of phenomenological research is to comprehend the lived experiences of a small number of people. According to Marshall and Rossman (1999), the researchers selected phenomenological methodology because their primary objective was to comprehend the full significance of the participants' experiences as described in their own words.

Research Tool

There will be five (5) questions written in an interview guide concerning out-of-field non-social studies teacher who handled Araling Panlipunan. Data will be collected through interview transcripts from selected non-social studies teachers who will be selected with

consent. The key informants of this study will be the eligible high-school teachers from the selected schools of the Division of General Santos City that are not Araling Panlipunan Teachers but are teaching Araling Panlipunan. The involved teachers will be the core of this investigation.

Participants and Settings

The main participants of this study are Junior High School Teachers of General Santos City Division. All of the key informants are the teachers who graduated with a bachelor's degree of secondary education of any major except Social Sciences. The key participants are teachers who have at least one year of teaching experience. The study will be conducted in the Division of General Santos City National. Participants of the study will be informed of the purpose of the study.

Prior to the conduct of this study, the researchers ask permission and approval to schools division superintendent, Romelito G. Flores, CESO VI, if they could conduct the study.

A letter of request for interviews will be sent to the participants before the conduct of the focus group discussion (FGD). To validate the result of the study, an in-depth key informant interview will be conducted.

During the interview, the researchers set the mood by asking the participants about their names, age and which school are they affiliated to. The interviews were conducted for 20 to 30 minutes with each participant. The researchers began the data analysis by becoming acquainted with the data.

Before conducting the research, the researchers handed out letters to the participants. The profiles of the participants are held privately as to assure their safety. The participants are not forced to answer the questions. If they decide not to participate, then the researchers will respect their decisions. Participants in the study were voluntary. The researchers did not intrude on the participants' personal privacy. The study did not affect in the emotional, psychological, spiritual and economic status of the participants.

Results and Discussion

What are the challenges encountered by Non- Araling Panlipunan Teachers in terms of Content?	
Clustered Themes	**Formulated Meanings**
1.1 Making learning relevant and engaging	• Using the concept of Across-Curriculum • Making the activities relevant to student experiences; • The content of the subject is difficult and stimulates boredom; • The content of the subjects requires a lot of reading which often leads to boredom;

1.2. Unfamiliarity and lack of knowledge	• The necessity to exert much effort in studying knowledge-based contents and topics of AP; • Shifting in using the medium of instruction from English to Filipino; • Lack of knowledge on certain concepts especially those that are unfamiliar terms; • Lack of knowledge to teach the subject since the field of specialization during college is not aligned to the subject being handled; • Lack of knowledge about the content; • Requires more time to research and study the topics; • Unfamiliar with the content and topics of the subject; • Lack of knowledge of the subject matter; • Unfamiliar with the contents of the subject resulting to uncertainty on the part of the teacher on the accuracy of what is being taught;
1.3 Double the effort and adjustment	• The subject requires a lot of reading time for the content; • The subject content is broad and difficult which needs more time to study for the teachers who are not history specialists; • It requires a lot of time of non-history major teachers to read more about the content of the subject;

Table 1: Challenges encountered by non- Araling Panlipunan teachers in terms of Content

As seen in Table 1, he participants encountered several challenges in teaching Araling Panlipunan in terms of Contents. These problems and woes are using the concept of across-curriculum, making the activities relevant to student experiences; the content of the subject is difficult and stimulates boredom; the content of the subjects requires a lot of reading which often leads to boredom. However, some of the participants was able to integrate their field of specialization in some topics in Araling Panlipunan.

What are the challenges encountered by Non- Araling Panlipunan Teachers in terms of Lesson Preparation?	
Clustered Theme	**Formulated Meanings**
1.2.1 Uncertain and at a lost	• Uncertain about the correctness of the objectives being set or made; • Have no idea where to start and what to create;
1.2.2. Finding the perfect fit	• Difficulty in integrating localization and other indicators; • Difficulty in applying the content to relevant activities; • Struggle in applying content through relevant activities; • Difficulty in arranging the lesson flow and finding activities that would fit the objectives;
1.2.3 Shift Code	• Difficulty in translating the applicable terms from English to Filipino and organizing the structure of the plan; • Struggle with the use of the Filipino language;
1.2.4 Learning resource inadequacy	• There is no book that can be used as a reference material;
1.2.5 Identifying the essentials	• Difficulty in trimming down the content to cope with time limits; • Difficulty in sub-tasking and budgeting the time allocation for the topic since content is too lengthy and broad;

Table 2: Challenges Encountered by Non- Araling Panlipunan Teachers in terms of
Lesson Preparation

As can be seem in Table 2, the participants manifest challenges encountered in term of lesson preparation. These challenges are uncertain and at a lost, finding the perfect fit, shift code, learning resource inadequacy and identifying the essentials in teaching Araling Panlipunan. The participants relayed their struggles in this area particularly on their experience about finding the perfect fit.

What are the challenges encountered by non-Araling Panlipunan teachers on terms of assessment?	
Clustered Themes	**Formulated Meanings**
1.3.1. Content-realignment Woes	• Creating HOT questions and aligning it with the TOS • Alignment of questions with the content;
1.3.2 HOTS Dilemma	• Questions cover only knowledge-based contents; • Difficulty in creating HOT questions; • Struggle with making HOTS questions; • Struggle with making and identifying HOT questions;

Table 3: Challenges encountered by non-Araling Panlipunan teachers in terms of Assessment

As seen in Table 3, the participants shared that they find content-realignment and making higher order thinking skills (HOTS) questions as challenges they have encountered on assessment. Some participants that they have difficulty in formulating HOTS questions in a multiple choice type of test because Araling Panlipunan gives an exact answer.

Based on their experience, they relayed different challenges such as aligning the content to the type of assessment, the multiple choice destructors and the analyzing, answering on whether this new learning modality gives them difficult situation or easier one. According to the participants, new modalities are harder in terms of finances, gadgets, and online connection.

Lastly, participants reiterated the financial burden that they have to endure since new modalities are harder in terms of finances or it adds up to financial struggle.

What are the coping mechanisms of these teachers in order to survive in this kind of environment?	
Clustered Themes	**Formulated Meanings**
2.1. Equip oneself	• Allocate time to study and use the internet for reference; • Help oneself to cope with the situation; • Spend time doing research and studying the content; • Read about the content of the subject;
2.2. Maximize the learning tools	• Utilize Google for proper pronunciation;

	• Find meaningful and reliable sources in the internet aside from asking colleagues; • Utilize learning and research tools such as the internet; • Use many references and tools for learning;
2.3 Call a friend	• Ask assistance from co-teachers aside from doing personal research and reading; • Ask for assistance and help from colleagues; • Ask for assistance from fellow teachers; • Ask help and assistance from co-teachers and conduct brainstorming activities; • Ask from seasoned colleagues;

Table 4: Coping mechanisms of these teachers in order to survive in this kind of environment.

Table 4 shows that the participants were able to cope in the environment that they are in by equipping themselves with the needed knowledge and skills, maximizing the learning tools and calling a friend.

Based on their experience, they relayed that they allocate time to study about the content and maximize the availability of online resources, consulting google for the proper pronunciation of the terms. They also ask assistance from their co-teachers and mentors.

Question 3: What are the different school's intervention regarding the specialization-workload mismatch?	
Clustered Themes	**Formulated Meanings**
3.1 Continuous Training	• Sent to attend seminars and workshops, and earn relevant units; • Attend seminars and workshops; • Informed about trainings; • Attend Re-echo seminar
3.2. Learning with Mentors and colleagues	• Conduct LAC Session; • Through LAC Session; • Conduct peer mentoring • Provision of reference materials and conduct mentoring through Master Teachers;

Table 5: Different school's intervention regarding the specialization-workload mismatch

As can be seen in Table 5, the schools where the participants are stationed gave the participants the following intervention, the continuous training of non-AP teachers, the learning action cell (LAC) session where the teachers learn with their mentors and colleagues. Some shared that part of their practice is to have a test bank, ready made Powerpoint presentation and lesson plan that is shared by the department checked by the Master Teachers.

Conclusion

Non-Araling Panlipunan teachers who are handling Araling Panlipunan are indeed facing many problems which in turn helped in the cultivation of the Filipino trait of adaptability. With the right amount of support from external factors like schools and internal motivations like passion, initiative, flexibility and open-mindedness, problems on the field teaching will be lessened if not totally eradicated.

The results of this study could be a great source of information for other aspiring researchers who wish to conduct studies related to the experiences and significant challenges encountered by Non-Araling Panlipunan teachers in Teaching Araling Panlipunan. They could either use it for literature reviews or comparative discussion to support their results as well. With the findings of the study, they could analyze the effects of teaching across specialization on the performance of the students and propose a curriculum for Bachelor of Secondary Education in Social Studies.

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