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***Where We Are: Current Level of Burnout and Self-Compassion of School Counselors in a Private School in Quezon City for School Year 2018-2019***

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**Abstract**

Counselors are expected to be physically and emotionally ready to assist their counsees. Because of these expectations, counselors are affected by the emotional demands of the profession. The current study focused on the current state of school counselors in a private institution. The participants are fourteen female counselors from the elementary to the tertiary level. To have an understanding of their experiences, the researcher made use of the Counselor Burnout Inventory and Self-Compassion Scale. Follow-up interviews were also conducted. Overall, the results showed that the school counselors have low levels of burnout and high levels of self-compassion. However, there are select participants who may be experiencing burnout and are not practicing self-compassion. Correlations show no significant relationship between burnout and self-compassion. Based on the findings, implications and recommendations were discussed.

Keywords: Counselor Burnout, Self-Compassion, Counselor Well-being

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## Introduction

The counseling profession requires counselors to be involved with different kinds of people, and counselors are oftentimes expected to meet their counselee's needs and expectations. In the study of Barlow and Phelan (2007), they mentioned that the counseling profession is considered as emotional labor. They are expected to engage with their counselee's emotions, while balancing their personal emotions and experiences (Cummins, Massey, & Jones, 2007). With the exposure to the counselee's concerns coupled with the counselor's own circumstances, this helping profession can make an individual feel exhausted physically, mentally, and emotionally. Due to the overwhelming demands of the profession, burnout is often associated with the field of counseling.

According to Schaufeli, Leiter, and Maslach (2009), burnout is another term for energy being drained. They describe burnout as fire being unable to continue burning, unless proper and appropriate resources are provided. In the helping profession, burnout is considered as the exhaustion an individual feels, which disables them from feeling empathy towards their clients (Burke, 1981).

Counseling is considered as a helping profession and it can be emotionally demanding and draining. Counselors are advocates of self-care and self-awareness. Therefore, striking a balance between their professional and personal lives is important. They should be able to understand their own physical, mental, and emotional states. That awareness should translate in finding ways to take care of themselves better. This self-awareness can be done through self-compassion.

Developing an attitude on self-compassion is said to be critical for counselors to avoid burnout (Coaston, 2017). Self-compassion is being mindful towards one's own suffering (Neff, 2004). Counselors are often compassionate towards their counsees. They are able to notice their counselee's discomfort and suffering, providing the counsees the assistance they need. According to Neff (2004), self-compassionate people are those who are aware of their own difficulties and sufferings. This awareness leads individuals to act on their struggles and find ways to make their situations better.

In field of counseling, professionals devote their time and energy in promoting the well-being of their counsees. The counselors become the emotional support of their counsees. In the counseling profession, counselors have to deal with emotionally-charged concerns from counsees (Coaston, 2017). They are exposed to different issues and concerns, whilst having their own. Because of the risk of being affected, the counseling profession pushes counselors to become more proactive in dealing with their own health and wellness.

Counselor wellness involves two domains: physical and emotional health (Bruck, Bruneau, Baker, & Ellison, 2014). Physical health involves exercise, nutrition, and recreational activities. On the other hand, emotional health involves the spirituality, mental well-being, social support, and relaxation. Physical health and emotional health go together to achieve wellness. The study done by Bruck and colleagues (2014) suggested that counselor wellness is not a singular model applicable to everyone.

Taking care of oneself is one of the professional and personal responsibilities of a counselor (Neswald-Potter, Blackburn, & Noel, 2013). Counselors will have difficulty to perform their functions and responsibilities if they are not physically and emotionally healthy. Therefore,

counselor wellness has been a subject of discussion in different researches (Coaston, 2017; Cummins et al., 2007; Hartwig Moorhead, Gill, Bario Minton, & Meyers, 2012; Neswald-Potter et al., 2013). Counselors who are able to balance their personal and professional lives are able to work efficiently and satisfactorily. Despite challenges, counselors who have balance are able to manage their emotions, without it affecting the way they interact with their counselees.

Empathy has always been the main aspect of counseling (Clark, 2010; Stebnicki, 2008; Sadler-Gerhardt & Stevenson, 2012). Not only are counselors expected to listen, they are also the receptors of their counselee's emotions, both positive and negative. Each counseling session is personal and after facilitating numerous sessions for different counselees, counselors will undeniably feel exhaustion (Cummins et al., 2007). Counselor self-care is important to be able to continue in providing quality counselee care. Once counselees start projecting their emotions, counselors are there to absorb.

Cummins et al. (2007) quoted Carl Rogers, stating "I have always been better at caring for and looking after others than I have in caring for myself." This underscores the importance of counselor wellness. Counselors end up getting emotionally drained at the expense of their counselee's peace of mind. According to Wilkerson (2009), counselors are able to feel satisfaction by being engaged with their counselees, despite the emotional exhaustion. However, being constantly exposed to their counselee's concerns put counselors at the risk of experiencing burnout.

Counselors who prioritize their wellbeing does not only improve personal life but help in increasing professional effectiveness as well (O'Donovan & O'Donovan, 2007). Being attuned to their current physical and emotional states promotes better work perception and reduce emotional exhaustion. This level of self-awareness is critical to counselors' wellbeing and attitude towards work.

In the present study, the researcher aims to look into the burnout and self-compassion level of school counselors. By doing so, the researcher wants to be able to promote wellness for counselors. Wellness involves conscious decisions in balancing different aspects of an individual's life, with the goal of prioritizing overall health (Myers & Sweeney, 2005). Promoting wellness and preventing impairment starts with an honest appraisal of an individual's health, balance, and self-care.

## **Methodology**

### **Participants and Setting**

The participants of the study are guidance counselors and guidance associates from an exclusive school for girls in Quezon City. The participants are counselors for the school year 2018 to 2019. There are a total of fourteen participants, all females. The participants of this study comprises of guidance counselors in the institution. They are from the different departments: lower school, middle school, high school, and college. Each counselor is assigned to handle 250 to 300 students in their batch.

Demographics	<i>f</i>	%
<i>Age</i>		
25 years old and below	0	0%
26 to 30 years old	1	7%
31 to 40 years old	6	43%
40 to 49 years old	3	21%
51 years old and above	4	29%
<i>Department</i>		
Lower School	4	21%
Middle School	3	29%
High School	4	21%
College	3	29%
<i>Years of Experience</i>		
5 years and below	4	29%
6 to 10 years	3	21%
11 to 15 years	1	7%
More than 15 years	6	43%
<i>Highest Educational Attainment</i>		
Bachelor's Degree	1	7%
Master's Degree	12	86%
Doctorate Degree	1	7%
<i>Common Concerns Handled</i>		
Peer Relationships	10	70%
Academic Concerns	10	70%
Personal Concerns (Coping, Interests, Hobbies, Identity)	6	43%
Emotional and Mental Concerns	6	43%
Family Issues	4	29%

Table 1: Demographics of the Participants

## Instruments

A demographic profile sheet was included in the set of questionnaires to gather necessary demographic information about the participants. The researcher utilized the Counselor Burnout Inventory (CBI) to measure the participants' level of burnout. The Self-Compassion Scale (SCS) was used to have an understanding of the counselors' level of self-compassion. For the current study, selected individuals were asked to participate in an interview with the researcher. A set of interview questions was used as a guide to have a deeper understanding of the participants' situation.

The demographic profile sheet includes items regarding the participants' age, years of experience as counselor, highest educational attainment, and licensure. The participants are also asked about the year level they are handling.

The Counselor Burnout Inventory is a 20-item self-rating scale that looks at burnout specifically for professional counselors by Lee and colleagues in 2007. The instrument is designed to assess 5 dimensions of burnout: Exhaustion ("Due to my job as a counselor, I feel

tired most of the time”), Incompetence (“I am not confident in my counseling skills”), Negative Work Environment (“I feel frustrated with the system in my workplace”), Devaluing Client (“I have become callous toward clients”), and Deterioration in Personal Life (“I feel like I do not have enough time to engage in personal interests”). The CBI asks the participants to describe how they feel by using a 5-point Likert scale from 1 (Never True) to 5 (Always True). The score is computed by averaging the all items. The CBI was cross-examined for the Philippines in the study of Puig, Yoon, Callueng, An, and Lee (2014). Below is the scale range of the CBI.

Scale	Range	Interpretation
5	5.00	Very High
4	4.00 to 4.99	High
3	3.00 to 3.99	Moderate
2	2.00 to 2.99	Low
1	1.00 to 1.99	Very Low

Table 2: Scale Range of CBI

The CBI scale was validated through factor analysis (Lee et al, 2007). The instrument’s internal consistency ranged from .73 to .85 and test-retest reliability from .72 to .85. Criterion validity was done by correlating the dimensions to the Maslach Burnout Inventory – Human Services Survey (MBI-HSS). The strongest positive correlation to Emotional Exhaustion of MBI-HSS is the Exhaustion dimension of CBI at .73. The dimension of Devaluing Client is positively correlated to Depersonalization of MBI-HSS at .56. The Personal Accomplishment measure of MBI-HSS was negatively correlated with Incompetence dimension of CBI.

The Self-Compassion Scale is a 26-item self-rating scale that looks at an individual’s ability to become aware and respond to one’s own suffering by Kristine Neff. They are to score from 1 (“Almost Never”) to 5 (“Almost Always”) in each item. The subscales of self-compassion are Self-Kindness (“I try to be loving towards myself when I’m feeling emotional pain”) vs Self-Judgment (“I’m disapproving and judgmental about my own flaws and inadequacies”), Common Humanity (“When I’m down and out, I remind myself that there are lots of other people in the world feeling like I am”) vs Isolation (“When I’m really struggling, I tend to feel like other people must be having an easier time of it”), and Mindfulness (“When something upsets me I try to keep my emotions in balance”) vs Over-Identification (“When I’m feeling down I tend to obsess and fixate on everything that’s wrong”).

These subscales are divided into two: positive and negative subscales. The positive subscales are self-kindness, common humanity, and mindfulness. The negative subscales are self-judgment, isolation, and over-identification. The SCS scores are computed by averaging all items. For the total self-compassion score, the negative subscale items (Self-Judgment, Isolation, and Over-identification) are scored reversely before getting the average. The internal consistency of the scale is reported to be at .94 (Neff ,2004). Below is the scale range of the SCS.

Range	Interpretation
3.51 to 5.00	High
2.51 to 3.50	Moderate
1.00 to 2.50	Low

Table 3: Scale Range of SCS

The SCS was distributed to counselors of a co-ed senior high school in Quezon City, prior distribution of the questionnaire to the participants. This was done to have the scale validated for the Philippine set-up. The counselors were asked to answer the scale and to provide comments on items that are confusing or may need to be revised. No changes were made based on the vetting, as there were no comments or clarifications on the instrument.

The researcher used a self-made interview guide containing six questions. All participants who were interviewed were asked the exact same questions. No deviation from the interview guide was made. The purpose of having a follow-up interview with some of the participants is to provide an in-depth viewpoint of how the counselors are faring in their profession. This will give the researcher a concrete idea as to why the counselors are feeling the way they do.

### Data Gathering Procedure

In the current study, mixed methods was used to be able to examine the current level of burnout and self-compassion among the participants. Quantitative data was collected through the use of the Counselor Burnout Inventory and Self-Compassion Scale. Follow-up interviews were also done to be able to gather qualitative data and provide support to the data derived from the CBI and SCS.

The participants of the study were selected through purposive sampling. The questionnaires containing the demographic profile, Counselor Burnout Inventory, and Self-Compassion Scale were given to the guidance supervisors of each department, to be distributed to the guidance counselors and guidance associates. A period of one week was given to the participants before all questionnaires were collected for data analysis. The responses from the questionnaires were analyzed with the use of descriptive statistics. The mean scores and standard deviation were computed for each CBI dimension and SCS subscale through the use of Microsoft Excel. Correlation of the CBI and SCS was also done by using the program SPSS Statistics.

A participant from each department was randomly selected for interviews and were scheduled individually. The researcher held the individual interviews at a date and time most convenient to the participants. Prior the start of each interview, the participants were informed that the session will be recorded through a voice recorder. The interview responses served as supplementary data to the results from the CBI and SCS. Meaningful responses from the interviews were lifted to make sense of the results.

### Results and Discussion

	f	Mean	Interpretation
Counselor Burnout Inventory	14	1.90	Very Low
Self-Compassion Scale	14	3.49	Moderate

Table 4: Overall Results of the CBI and SCS

As can be seen in Table 4, it can be said that the counselors in this study are reported to have low levels of burnout and high levels of self-compassion. This result is backed by the study of Thurlow (2010), where the participants who were reported to have high levels of self-compassion have lower levels of burnout. Counselors who are able to practice self-compassion may be able to avoid burnout (Coaston, 2017). However, it is still noted the correlations of this study showed no significant relationship between burnout and self-compassion.

This result is favorable towards the institution because it shows how the counselors are satisfied with their current states. The participants have not viewed their profession as detrimental to their personal lives. Reports of satisfaction in their field have been reported despite being exhausted because of work. They also view their work environment and their colleagues as a positive contributor to their work lives. The results show that the counselors are also aware of what self-care routines work best for them (i.e. journaling, breathing exercises, eating out).

It is evident that the participants of this study is satisfied overall in their work and are self-compassionate towards their struggles. Albeit majority had promising results, there are still individuals who scored higher in terms of burnout and lower in terms of self-compassion. Negative experiences were reported and some participants have expressed how their profession has been affecting them. These information shows us that it is still important to take note of the outliers in the study.

CBI Dimensions	Mean	Standard Deviation	Qualitative Interpretation
<i>Exhaustion</i>	2.48	1.00	<ul style="list-style-type: none"> <li>- The mean score shows that the participants may feel occasionally tired due to work.</li> <li>- Based on the standard deviation, the responses are relatively close to the mean.</li> </ul>
<i>Incompetence</i>	2.09	0.59	<ul style="list-style-type: none"> <li>- The mean score can mean that the participants rarely feel internal incompetence as a counselor.</li> <li>- The standard deviation shows that the responses are not that spread out.</li> </ul>
<i>Negative Work Environment</i>	1.77	0.36	<ul style="list-style-type: none"> <li>- The mean score shows that the participants do not perceive their working environment as negative.</li> <li>- The responses of the participants are not dispersed, therefore more closer to the mean.</li> </ul>
<i>Devaluing Client</i>	1.29	0.40	<ul style="list-style-type: none"> <li>- The participants' perception of their relationship with their clients is negative.</li> <li>- The spread of the responses of the participants are very minimal.</li> </ul>
<i>Deterioration in Personal Life</i>	1.82	0.73	<ul style="list-style-type: none"> <li>- The participants do not view their work as detrimental to their personal lives based on the mean score.</li> <li>- The responses of the participants are not dispersed.</li> </ul>

Table 5: Results of the CBI

As can be seen in Table 5, the mean scores of the participants in all five dimensions of the CBI are quite low. Having low mean scores in these dimensions mean that the participants are able to avoid being affected by these dimensions. However, it can be noted that the dimension on exhaustion had the highest mean score of 2.48. The standard deviation of all dimensions also show minimal dispersion of the participants' responses.

In the field of counseling, low levels of burnout imply counselor productivity (Cummins et al., 2007; Neswald-Potter et al., 2013). Because counselors are able to balance their emotions, they are able to work effectively, without personal circumstances and work exhaustion affecting their output. This is a positive result considering the high-touch nature of counseling work. Counselors are able to work effectively despite the challenges they face and exhaustion they experience because of their profession. Despite the low level of burnout reported among the participants, it does not guarantee that burnout will not manifest at all, as it may still manifest within the duration of a counselor's profession (Lee et al., 2007).

The overall result of the CBI showed positive results for the counselors. Although that is the case, there are participants who scored high in some of the dimensions after looking at the individual mean scores. In Table 6, a specific participant has a mean score of 4.25 for exhaustion, which is relatively high. Counselors' may experience exhaustion due to the nature of their profession being emotionally-charged (Barlow & Phelan, 2007; Copley, 2013). The interviews support this as participants have reported to feeling drained at the end of a work day.

CBI Dimension	Individual Scores	
	<i>Lowest</i>	<i>Highest</i>
<i>Exhaustion</i>	1.5	4.25

#### Translated Response from Filipino to English:

There was a time that we had a flood of students in the office because of an issue that arose in their grade level. We had to do debriefing for a lot of students the whole day. Counselees flooded our office with the same concerns. Even though I was the level counselor, other counselors already had to help. I was really stressed that time. I had to eat my lunch for 15 minutes and the rest of my time was focused on counseling. It didn't stop in one day. It overspilled to the coming days and we had to work overtime. At that time, it was really physically and emotionally exhausting. It was the first time in my years of experience that I cried.

Table 6: Extreme Scorer for CBI Dimension Exhaustion

Counselors have to deal with different kinds of concerns from counselees and the profession requires direct counselee services. This high-touch profession makes counselors become more vulnerable to exhaustion (Cummins, et al., 2007). This makes physical, mental, and emotional exhaustion in the counseling profession inevitable. According to Wilkerson (2009), counselors are aware of the physical and emotional exhaustion attributed to their work. However, this awareness does not stop them in performing what is expected of them. Counselors are aware of their responsibilities and know the importance of their work in helping their counselees.

For the incompetence subscale, participants who underwent interviews shared how they felt whenever they handle difficult cases. These participants would often question their abilities as counselors. They started doubting and questioning themselves if counseling is the right fit for them.

CBI Dimension	Individual Scores	
	<i>Lowest</i>	<i>Highest</i>
<i>Incompetence</i>	1.25	3

**Translated Response from Filipino to English:**

I had one particular case in my previous school that I found really difficult. I didn't know how to handle it and had to ask help from my fellow counselors. It really made me ask myself if I was an effective counselor. It made me ask if I am still being helpful and if I knew enough as a counselor.

Table 7: Extreme Scorer for CBI Dimension Incompetence

Counselors are expected to offer emotional assistance and help to those who need it (Sadler-Gerhardt & Stevenson, 2012). Counselors can get affected negatively because of the expectations of being helpful towards their counselees. Self-imposed expectations would often be about being able to help and make the counselees feel better. Once these expectations are not met, counselors would feel inadequate in helping their counselees (Copley, 2013). Counselors shoulder the burden of being helpful towards their counselees and would often feel like they have failed if counselees are unable to show improvement.

Negative Work Environment received a low mean score, 2.5 being the highest among the participants. This shows that the participants do not perceive their working environment as detrimental to their experience as counselors. The participants mentioned how thankful they are for the work environment, which fosters camaraderie within the counselors. They have shared that their colleagues are their source of strength in doing better as counselors. Their colleagues become a support system whenever they start feeling exhausted. This result shows how important the work environment is for a counselor (Lee et al., 2007).

CBI Dimension	Individual Scores	
	<i>Lowest</i>	<i>Highest</i>
<i>Negative Work Environment</i>	1	2.5

**Verbatim Responses:**

When I had a difficult case before, my supervisor was very much helpful and involved. The other counselors were also very supportive and they would assure me that it wasn't my fault that these things happened. They also told me that they see my effort.

Table 8: Extreme Scorer for CBI Dimension Negative Work Environment

As part of the work environment, supervision plays an equally important part in helping counselors avoid burnout. In the study of Merriman (2015), counselor supervision is said to contribute to counselors feeling safe in their work environment. A participant shared in her interview that her supervisor plays an important role whenever she encounters difficult cases. Having an effective supervisor helps counselors feel at ease in handling cases without the fear of being judged. Supervision allows counselors to be able to consult their cases and get opinions about them, without making them feel incompetent by doing so (Merriman, 2015). Instead, supervisors enable counselors to feel empowered in evaluating and handling their difficult situations.

Counselors are often exposed to cases ranging in difficulty. Despite difficulties, counselors may still be able to maintain their professional relationship with their counsees, without the perceptions of their counsees getting affected (Mullen & Gutierrez, 2016). However, their accumulative negative experiences as counselors may contribute to the change of counselee perception (Lee et al., 2007). In the current study, the participants' perception towards their clients have not been affected even with the exhaustion brought by work.

CBI Dimension	Individual Scores	
	<i>Lowest</i>	<i>Highest</i>
<i>Devaluing Client</i>	1	2.25

#### Verbatim Responses:

Being able to help the students is what I enjoy. That is the heart of counseling. Just knowing that the student who comes here, who probably had a bad day, will feel a little better at the end of our session makes me feel good about what I do.

Table 9: Extreme Scorer for CBI Dimension Devaluing Client

During the interviews, participants would often mention that they enjoy being present for their counsees. They shared that helping their counsees is one of the things they like best about being a counselor. As counselors, they find satisfaction and fulfillment in being exposed to different individuals. Even with the stress and exhaustion because of work, counselors are still able to perform their responsibilities to their counsees. This shows how these counselors embrace their roles and how highly they think of their counsees.

In the last dimension, the highest mean score of a participant is 3.25. Deterioration in personal life pertains to how a counselors' work affect their personal lives (Lee et al., 2007). Because of their work as counselors, they have the tendency to forget about their own needs.

CBI Dimension	Individual Scores	
	<i>Lowest</i>	<i>Highest</i>
<i>Deterioration in Personal Life</i>	1	3.25

#### Verbatim Responses:

Sometimes, I tend to neglect myself even when you want to take care of yourself. I always tell my students that they have to take care of themselves but in reality, I don't do it as well. I feel so guilty about it.

Table 10: Extreme Scorer for CBI Dimension Deterioration in Personal Life

Without personal self-care, counselors will not be able to maintain their motivation to work. In the study of Skovholt et al. (2001), it was emphasized that counselors need to focus on the need to have personal self-care. It is central for counselors to address their physical, mental, emotional, and spiritual needs. Counselors are used to always providing help towards their counsees. However, counselors must acknowledge the need to provide personal self-care (Cummins et al., 2007). These self-care routines will help counselors maintain better work-life balance.

In the SCS, the participants were able to get a mean score of 3.49, which is a moderate level. The mean score indicates a moderate level of self-compassion among the school counselors. According to Neff (2004), having self-compassion enables individuals to become more empathic towards themselves despite their struggles. In the field of counseling, having self-compassion will help counselors in accepting their negative experiences and challenges the face at work without being self-critical (Germer & Neff, 2015). There is acceptance and knowledge of what needs to be addressed without putting the blame to oneself.

SCS Subscales	Mean	Standard Deviation	Qualitative Interpretation
<i>Self-Kindness vs Self-Judgment</i>	4.06 2.46	0.62 0.79	<ul style="list-style-type: none"> <li>- The mean scores show that the participants are not self-critical towards their own challenges.</li> <li>- The standard deviation shows that the responses are not that spread out.</li> </ul>
<i>Common Humanity vs Isolation</i>	4.04 2.14	0.53 0.77	<ul style="list-style-type: none"> <li>- The results indicate that the participants may consider their suffering as common with others.</li> <li>- The standard deviation shows that the responses are not polarized.</li> </ul>
<i>Mindfulness vs Over-identification</i>	4.02 2.54	0.71 1.04	<ul style="list-style-type: none"> <li>- The results show that the participants practice mindfulness when experiencing challenges.</li> <li>- The responses of the participants are not as spread out, which can be seen in the standard deviation.</li> </ul>

Table 11: Results of SCS

The subscales of the SCS are divided into two: positive and negative subscales. The positive subscales are self-kindness, common humanity, and mindfulness. On the other hand, the negative subscales are self-judgment, isolation, and over-identification. The results are leaning more towards positive subscales. Higher mean scores in the positive subscales imply higher levels of self-compassion (Neff, 2004).

The participants have a mean score of 4.06 in self-kindness, a higher mean score compared to self-judgment, which is 2.46. This result suggests that whenever the counselors are faced with challenges, they are able to handle it without being self-critical. These counselors have the ability to be more understanding of their flaws instead of berating themselves because of their mistakes. However, despite scoring high in self-kindness, there are select participants who still scored high in self-judgment. This result shows that there are participants who are self-critical towards themselves. These participants are more prone to stress and frustration, which may eventually lead to burnout.

The same trend can be seen in subscales common humanity (4.04) and isolation (2.14). This result indicates that the participants feel that their concerns are also experienced by people outside of themselves. The counselors are able to acknowledge that other counselors may be experiencing the same challenges they are going through (Neff, 2004). Having a higher mean score in common humanity will help counselors in avoiding feeling self-pity. Despite having a higher mean score for common humanity, there are still outliers who scored high in isolation.

These outliers indicate that there are counselors who may still have the tendency to feel that they are shouldering the burden by themselves.

For mindfulness vs over-identification, the results show that mindfulness (4.02) is higher compared to over-identification (2.54). Overall, the participants are able to practice mindfulness. According to Neff (2004), mindfulness involves an individual assessing their negative experiences by acting appropriately, instead of perceiving it in an exaggerated manner. The participants in this study are able to objectively look at their problems and act on them rationally. However, there are some outlying participants who may be having a hard time in managing their negative experiences and emotions. Instead of being aware of what they are going through, they tend to see things as bigger as what it is supposed to be.

SCS Subscales	Individual Scores	
	<i>Lowest</i>	<i>Highest</i>
<i>Self-Kindness</i>	3.4	5

Translated Response from Filipino to English:

The other counselors were also very supportive and they would always reassure me. They tell me that I'm not incompetent and I can only do so much as a counselor.

<i>Self-Judgment</i>	1	3.6
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Translated Response from Filipino to English:

I felt exhausted on my initial years as a counselor, as a newbie. I would get affected by cases that are emotionally trying. I couldn't eat and enjoy my dinner. If I will describe, I started questioning myself. Is this really my field? Is this really meant for me? Is this the work I really want to have for myself for the long haul?

Table 12: Extreme Scorer for SCS Subscales Self-Kindness vs Self-Judgment

For the SCS, the extreme scorers for the subscales the were also noted. For self-kindness vs self-judgment, the highest mean scores of participants are 5 and 3.6, respectively. A participant shared that she feels reassured about herself with the help of her colleagues. The assurance from her colleagues helped her put things into perspective and not berate herself with her mistakes. However, a participant also shared her situation when she was just starting as a counselor. She mentioned the difficulty in adjusting and handling cases. Counselors who undergo stressful situations in their field have the tendency to doubt their abilities and question if the field is a right fit for them (Copley, 2013).

SCS Subscales	Individual Scores	
	<i>Lowest</i>	<i>Highest</i>
<i>Common Humanity</i>	3.25	5

Translated Response from Filipino to English:

It helped me greatly that I can be with my fellow counselors. You can consult with them about their take on your case because there may be things that I haven't considered implementing. My co-counselors are very supportive. We usually hangout and eat at the end of a stressful day. Whenever we do that, it helps me feel that I'm not alone in feeling like this.

<i>Isolation</i>	1.5	3.5
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Translated Response from Filipino to English:

I'm like the catch-basin of their concerns so it can be very draining. There was a time that we had a heavy case, I was still talking to a student but I wasn't feeling well anymore. However, I still tried my best because she's already crying. Who else can she talk to?

Table 13: Extreme Scorer for SCS Subscales Common Humanity vs Isolation

For the subscales common humanity vs isolation, the highest mean scores are both 5 and 3.5, respectively. According to one participant, she finds comfort in having her colleagues around. This response shows that having fellow counselors around helps other counselors in understanding that they are not alone in their plight. They are able to find an outlet to release all the tension and stress they received because of work. This realization helps counselors in coping with the stress and exhaustion cause by their profession (Patsiopoulos & Buchanan, 2011). However, there are still counselors who may feel isolated in their experiences as counselors.

SCS Subscales	Individual Scores	
	<i>Lowest</i>	<i>Highest</i>
<i>Mindfulness</i>	3	5

Verbatim Responses:

Counselors have our own batteries. We have our physical and emotional health batteries. As counselors, our emotional health batteries can get depleted because we constantly talk to our students who have concerns. It's really important to have self-care routines because we will be rejuvenated. We can bring our batteries back to 100%.

<i>Over-Identification</i>	1	4.5
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Translated Response from Filipino to English:

Since it happened every day, I ended up crying every morning because I really didn't know what to do anymore. In addition to that, I know that the teachers and the adviser were also expecting something from me. The expectations added burden on me because nothing was working.

Table 14: Extreme Scorer for SCS Subscales Mindfulness vs Over-Identification

The subscales mindfulness vs over-identification has 4 and 4.5, respectively, as the highest mean scores. Mindfulness enables counselors to become aware of their own emotional states (Germer & Neff, 2015). In one interview, a participant used batteries as a way to describe counselors' awareness of their welfare. The response shows proper practice of mindfulness and awareness of what needs to be done when counselors reach emotional exhaustion.

However, counselors may still over-identify to their negative experiences. Because of issues at work, counselors tend to have certain expectations of themselves (Copely, 2013). This becomes a burden, pressuring them to do better with work. Their perceptions of what is happening becomes clouded and they begin to think irrationally. These irrational thoughts end up becoming bigger than what is actually happening.

		Self-kindness	Self-judgment	Common Humanity	Isolation	Mindfulness	Over-identification
Exhaustion	Correlation Coefficient	-.046	-.309	-.209	-.383	.189	-.214
	Sig. (2-tailed)	.876	.283	.472	.176	.518	.462
Incompetence	Correlation Coefficient	-.198	-.427	-.192	-.389	.302	-.290
	Sig. (2-tailed)	.497	.128	.510	.169	.294	.315
Negative Work Environment	Correlation Coefficient	-.181	-.236	.153	-.164	.233	-.047
	Sig. (2-tailed)	.536	.417	.602	.574	.422	.873
Devaluing Client	Correlation Coefficient	-.151	-.285	.088	-.348	.316	-.232
	Sig. (2-tailed)	.606	.323	.765	.223	.271	.424
Deterioration of Personal Life	Correlation Coefficient	-.236	-.325	-.078	-.349	.236	-.310
	Sig. (2-tailed)	.416	.256	.790	.221	.416	.281

\* $p < .05$

Table 15: Correlation Between CBI and SCS

The correlation between counselor burnout and self-compassion was taken into consideration. Based on the results, there is no significant relationship between burnout and self-compassion. This means that the level of burnout may not necessarily be attributed to the level of self-compassion. Although there is no significant relationship, it cannot be concluded that self-compassion and burnout have no statistical relationship. Studies have shown the relationship of self-compassion and burnout. Self-compassion enables individuals to have healthier mindsets towards their struggles (Germer & Neff, 2015). Counselors who practice self-compassion become mindful of their emotions, which makes them less likely to develop burnout (Yip et al., 2016). In this study, the result of the weak relationship of self-compassion and burnout may be due to the small sample size. There are only 14 participants in this study and small sample size may have contributed to this result (Pallant, 2005).

Age	<i>f</i>	CBI Average	SCS Average
25 years old and below	0	0	0
26 to 30 years old	1	2.05	4.01
31 to 40 years old	6	1.87	3.18
40 to 49 years old	3	2.42	3.47
51 years old and above	4	1.49	3.84

Table 16: Results Based on Age

Aside from the interviews, the age group and years of experience of the counselors were also taken into consideration. Burnout may affect counselors from different age groups (Copley, 2013; Mullen et al., 2018). In the current study, it can be seen that all of the mean scores are low for the CBI. However, it can be noted that certain age groups (26 to 30 years old and 40 to 49 years old) have higher mean scores compared to the others. The results suggest that the participants in this study have no difference between what new counselors and seasoned counselors may be experiencing in terms of burnout.

Years of Experience	<i>f</i>	CBI Average	SCS Average
5 years and below	4	1.81	3.40
6 to 10 years	3	2.28	3.35
11 to 15 years	1	2.00	2.88
More than 15 years	6	1.73	3.72

Table 17: Results Based on Years of Experience

Looking at the years of experience, it can be seen that there is minimal difference between the less experienced counselors and the more experience counselors when it comes to burnout. This finding is supported by the study of Wilkerson (2009), which states that years of experience is negatively correlated to burnout. In the SCS, all groups show high levels of self-compassion.

For SCS, all age groups have high mean scores, which indicates high levels of self-compassion. This finding shows that the counselors are able to practice self-compassion across age groups. There is no specific age group that shows a noteworthy difference with the other age groups.

		Years of Experience	Age
Exhaustion	Correlation Coefficient	-.211	-.356
	Sig. (2-tailed)	.468	.211
Incompetence	Correlation Coefficient	-.181	-.236
	Sig. (2-tailed)	.537	.417
Negative Work Environment	Correlation Coefficient	.312	.167
	Sig. (2-tailed)	.277	.568
Devaluing Client	Correlation Coefficient	-.142	-.248
	Sig. (2-tailed)	.628	.393
Deterioration of Personal Life	Correlation Coefficient	-.096	-.236
	Sig. (2-tailed)	.744	.417

\* $p < .05$

Table 18: Correlation Between CBI and Years of Experience, and CBI and Age

		Years of Experience	Age
Self-kindness	Correlation Coefficient	.308	.321
	Sig. (2-tailed)	.283	.262
Self-judgment	Correlation Coefficient	.494	.546*
	Sig. (2-tailed)	.072	.044
Common Humanity	Correlation Coefficient	.457	.127
	Sig. (2-tailed)	.101	.664
Isolation	Correlation Coefficient	.360	.382
	Sig. (2-tailed)	.207	.178
Mindfulness	Correlation Coefficient	-.441	-.381
	Sig. (2-tailed)	.114	.179
Over-identification	Correlation Coefficient	.093	.288
	Sig. (2-tailed)	.753	.318

\* $p < .05$

Table 19: Correlation Between SCS and Years of Experience, and SCS and Age

The participants' years of experience and age were also correlated to the CBI and the SCS. Based on the results, there is no significant relationship between these factors, except for age and the SCS subscale self-judgment. This indicates that years of experience and age may not necessarily explain the participants' level of burnout and self-compassion. The study of Copley (2013) indicates that both new and seasoned counselors may experience burnout because they have different experiences as counselors. New counselors may experience burnout because of their idealism about the profession and lack of professional experience (Mullen et al., 2018). Season counselors are also vulnerable to burnout because of their many experiences in dealing with counselees throughout the years (Butler & Constantine, 2005).

Scale	Range	Lower School ( <i>n</i> = 4)	Middle School ( <i>n</i> = 3)	High School ( <i>n</i> = 4)	College ( <i>n</i> = 3)
5	5	0	0	0	0
4	4.00 – 4.99	0	0	0	0
3	3.00 – 3.99	0	0	0	0
2	2.00 – 2.99	1	2	2	1
1	1.00 – 1.99	3	1	2	2

Table 20: Results of CBI Based on Each Department

Range	Lower School ( <i>n</i> = 4)	Middle School ( <i>n</i> = 3)	High School ( <i>n</i> = 4)	College ( <i>n</i> = 3)
3.51 – 5.00	1	1	2	2
2.51 – 3.50	3	2	2	1
1.00 – 2.50	0	0	0	0

Table 21: Results of SCS Based on Each Department

Frequencies of the range of scores were analyzed for each department. This was done to show if certain department received higher or lower scores for the CBI and SCS. Overall, it can be seen that no department had a glaring difference in terms of scoring high or low for both the CBI and the SCS.

Self-care Routines	
• Walking	• Watching movies/TV shows
• Gardening	• Eating out
• Cooking	• Spa (i.e. nail spa, massage)
• Reading	• Hanging out with friends
• Deep breathing exercises	• Sports (i.e. swimming)
• Journaling	

Table 22: Reported Self-care Routines from Interview Responses

Based on the interviews, the participants of the current study show awareness of self-care routines that contribute to their wellbeing. They shared different activities which help them in de-stressing whenever they feel overwhelmed. The participants acknowledge the importance of these self-care activities as part of being counselors. According to Skovholt et al. (2001), that personal nourishment is needed for counselors to be able to last long in the profession. Self-care routines can be these personal nourishments.

the study of Bruck et al. (2014), wellness strategies differ from one person to another. These strategies depend on the counselor's preferences and interests. A counselor may prefer more physical activities, while other counselors may prefer a more social activity. With these self-care routines, counselors are able to relieve their stress and exhaustion from work.

## Conclusion

The current study examined the current level of burnout and self-compassion of school counselors. Burnout has always been linked to the helping profession, counseling being one. With the increasing attention on mental health, it is only appropriate for counselors to also

understand and become more aware of their own well-being, instead of only focusing on their counselees.

It is evident in this study that counselors are able to capable of avoiding burnout. Counselors may feel physical and emotional exhaustion from the nature of their work. Even with the exhaustion, this does not prevent them from performing their tasks and finding motivation in helping their counselees. Undergoing stress and frustrations is normal in the field of counseling.

However, counselors who are unable to realize their own plight and fatigue are more likely to experience burnout. By becoming aware of their level of burnout, counselors may be able to practice self-care and seek help if needed (Sadler-Gerhardt & Stevenson, 2012).

According to Germer and Neff (2015), one way to attain this awareness is by becoming more self-compassionate towards their experiences as counselors. Self-compassion does not only entail awareness of an individual's suffering. It involves being proactive in resolving the challenges that they face in an appropriate way. Self-compassion will enable counselors to be more attuned with their conditions and react in the best possible way.

The current study was able to profile the school counselors of a specific institution in terms of burnout and self-compassion. However, the results cannot be generalized for all school counselors because of the study's limitations. These limitations include having a small sample size, having only one gender (females), and gathering data for one specific institution. These limitations can be addressed and explored in further studies.

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***Self-harm & Non-suicidal Self-Injury (Nssi) Tendencies Among Children: Effect of an Intervention Program***

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**Abstract**

Self-harm according to research is an increasing global concern, which is not just of today. It has begun to be alarming that in the recent generation self-harm and Non-Suicidal Self-Injurious (NSSI) behavior have been rampant especially in the younger ages. This study aims to determine the prevalence of self-harm and non-suicidal self-injury tendencies and the common form of self-harm among those who are in late childhood up to the earlier years of adolescence. Moreover, this action research also gauges the overall psychological distress of the respondents in the dimensions such as subjective well-being, problems and symptoms, life functioning and, risk and harm. It was participated by 301 school-going adolescents under ages 9 to 11 years old and employing a standardized self-report questionnaire (Clinical Outcomes Result Evaluation). The findings indicate that the most common form of self-harm is cutting (71.43%). Results also show that the dimension risk and harm determines an individual being at risk to themselves or others by having thoughts of hurting oneself. Findings suggest that prevention program such as wellness intervention can be developed and implemented to promote skills to minimize risk-taking behavior such self-harm and self-injury.

Keywords: Self-harm, Non Suicidal Self-injury (NSSI), Psychological Distress, Social-emotional Learning, Psychological Well Being

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## **Introduction**

Stress is not just a problem of adults but rather it is already a concern of the younger generation. According to Goodman et al. (2005), stress refers to a stimulus generating psychosocial and physiological demands requiring action on the part of the individual. As it is normal having some stress in life, young people are already experiencing both physical and emotional manifestation of such experience. Teenagers experience feeling of stress, confusion, pressure to succeed, self-doubt, and other fears while navigating their way to adulthood (Miller, 2010). For some of them, it has become part of their system and life yet there is also repercussion when the stress level reaches an overwhelming state.

Adolescence is a period characterized by substantial emotional and behavioral challenges that correspond with important brain developmental changes. When they experience strong negative emotions, they tend to experiment with a range of coping behaviors, some of which may be maladaptive, such as substance use, disordered eating patterns, and non-suicidal self-injury. Eight ways of coping according to Lazarus are the following: confrontive, distancing, self-controlling, social support seeking, accepting responsibility, escape-avoidance, planful problem solving, and positive reappraisal. One could attempt to discover how self-harming early adolescents categorize self-harm as a way of coping. Some early adolescent may constantly categorize self-harm in one or more categories of coping, whereas others may be more inconsistent, fluid, and flexible with their perceptions of functions that self-harm performs. Although Lazarus' categories of coping could assist one in defining the function that self-harm, it cautions that coping is complex process that changes across time and across stressors. Beyond the ways of coping, one could further examine the outcomes of early adolescent self-harm (Lazarus, 1993).

The act of harming one's own body tissue without the intent to die is known as non-suicidal self-injury (NSSI). Self-injury has been identified as a coping mechanism to deal with emotional distress. Non-suicidal self-injurious behavior is mostly manifested through cutting, burning or hitting oneself, scratching oneself to the point of bleeding and interfering with healing (Grandclerc, De Labrouhe, Spodenkiewicz, Lachal & Moro, 2016). It is a relatively frequent behavior in adolescents and young adults. Its principal risks will evolve toward other forms of self-injurious behavior such as suicide attempts and may eventually become chronic.

## **Framework**

This study is based on the concept 'Social and Emotional Learning' also known as SEL by Collaborative for Academic, Social and Emotional Learning (2007) and the Model of Psychological Well-Being by Carol Ryff (1995).

## **Social and Emotional Learning (SEL)**

Social and Emotional Learning involves the processes of developing social and emotional competencies in children. SEL programming is based on the understanding that the best learning emerges in the context of supportive relationships that make learning challenging, engaging, and meaningful. Social and emotional skills are critical to being a good student, citizen, and worker.

SEL uses positive youth-development and the promotion of social and emotional competencies to prevent the development of emotional and behavioral problems (Benson, 2006; Guerra & Bradshaw, 2008). This concept has developed from the research related to prevention and resilience (Zins, Bloodworth, Weissberg, & Walberg, 2004). Different risky behaviors like drug use, violence, bullying, and dropout, can be prevented or reduced when multi-year, integrated efforts develop students’ social and emotional skills. This is best done through effective classroom instruction, student engagement in positive activities in and out of the classroom, and broad parent and community involvement in program planning, implementation, and evaluation (Bond & Hauf, 2004; Hawkins, Smith, & Catalano, 2004; Weare & Nind, 2011).



Figure 1. The Five Social and Emotional Learning Core Competencies

**Model of Psychological Well-being: The Six Criteria of Well-Being (Ryff, 1995)**

Model of Psychological Well-being differs from past models in one important way: well-being is multidimensional and is beyond a simple positive-negative dichotomy. Well-being is best characterized as a profile of indicators across multiple domains, rather than a single factor. It is not merely about happiness or positive emotions.

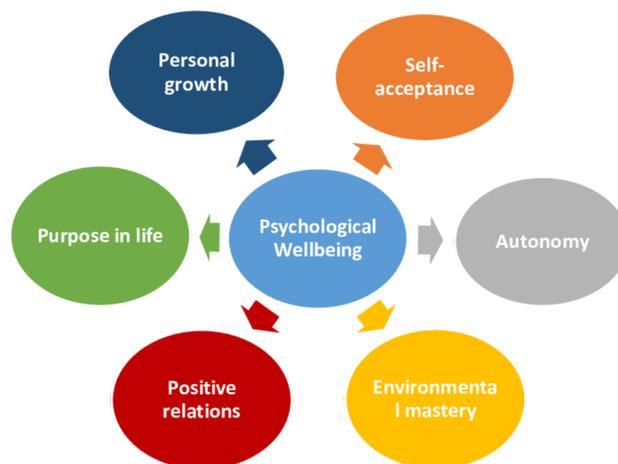


Figure 2. Model of Psychological Well-being: The Six Criteria of Well-Being

## Forms of Self-Harm

In a 2010 study in the *Journal of Abnormal Psychology*, Franklin and colleagues investigated one of the central questions of why people report feeling better after hurting themselves. They used a task that measured people's defensive eye-blink responses before and after they dipped their hands into ice-cold water. The results indicated that self-injurers do in fact feel better afterward. Healthy controls showed exactly the same degree of physiological defensiveness and subsequent physiological relief as those who engaged in self-injury. In a 2013 paper in *Clinical Psychological Science*, Franklin's team replicated the finding and also showed that most people had equivalent changes in positive emotions in response to shocking stimuli. He discovered something described by psychologists 70 years ago: a phenomenon called pain offset relief. According to this concept, virtually everyone experiences an unpleasant physical reaction to a painful stimulus. Removing the stimulus does not return the individual to their pre-stimulus state, however. Rather, it leads them into a short but intense state of euphoria.

Scratching or pinching is a behavior that includes severely scratching or pinching with fingernails or objects to the point that bleeding occurred, or marks remained on the skin (Whitlock et al., 2006). This method of self-injury was seen in more than half of all students who reported participating in self-harm. Impact with objects is a self-harm behavior included banging or punching objects to the point of bruising or bleeding. This way of self-harm was seen in just over 37 percent of the self-harming students. While cutting is often considered synonymous with self-harm, this way of self-mutilation only occurred in just over 1-in-3 students who reported demonstrating self-harm. The impact with oneself is a self-injury method includes banging or punching oneself to the point of bruising or bleeding. This way to self-injure was seen in almost 25 percent of the students who reported self-harming behaviors. Ripped skin as a way of self-mutilation includes ripping or tearing skin. This type of self-injury was seen in just under 16 percent of those who admitted to self-harming behaviors. Carving as a way of self-harm is when a person carves words or symbols into the skin. This is different from cutting. This method of self-mutilation was identified by just under 15 percent of those who self-harm. Interfering with healing as way of self-mutilation and is often in combination with other types of self-harm. In this case, a person purposefully hampers the healing of wounds. This method of self-harm was used by 13.5 percent of respondents. Burning skin is a way of self-mutilation. Burning as a way of self-injury was seen in 12.9 percent of students who harmed themselves. Rubbing objects into the skin is type of self-harm that involves the rubbing of sharp objects, such as glass, into the skin. Twelve percent of responding students used this way to self-harm. Hair-pulling, another way to self-harm is medically known as trichotillomania. In trichotillomania, a person feels compelled to pull out their own hair and, in some cases, even ingest that hair. This type to self-injury was seen in 11 percent of students who self-harmed (Whitlock et al., 2006).

## Subjects

Table 1: Gender Distribution of Study Sample

Gender	Number of Respondents (N)	Percentage (%)
Male	158	52.67
Female	143	47.33
Total	301	100

## Instrument

CORE (Clinical Outcomes in Routine Evaluation) Outcome Measure developed by the CORE System Trust (CST), a not-for-profit company that holds and protects the copyright on the CORE instruments. It is a self-report questionnaire, where respondents were asked to answer 34 questions about how they have been feeling over the last week, using a 5-point scale ranging from 'not at all' to 'most or all of the time'. It addresses global distress and is therefore suitable for use as an initial screening tool and outcome measure; like most self-report measures, it cannot be used to gain a diagnosis of a specific disorder. The mean of all 34 items can be used as a global index of distress, the main design intention.

Four Dimensions of the CORE Outcome Measure:

- Subjective well-being (4 items)
- Problems/symptoms (12 items)
- Life functioning (12 items)

## Discussion of Results

This action research aims to answer the following queries:

1. What is the occurrence of self-harm among the respondents?

Table 2: Self-harm Occurrence

Grade 6 AY 2017-2018	Male		Female		Total	
	F	P (%)	F	P (%)	F	P (%)
Self-Harm Related Cases	8	5.06%	6	4.19%	14	4.65%
Total Number of Respondents	158		143		301	

This table shows that out of a population size of 301, 14 were identified and referred to the counseling office due to self-harm related cases. Of these, 8 or 5.06 percent are female while 6 or 4.19 percent are male. 4.65 percent of the population was reported to engage in self-harm or possible NSSI behavior.

2. What is the most common form of self-harm among the respondents?

Table 3: Forms of Self-harm

Forms of Self-Harm	Frequency	Male	Female	P (%)
Cutting	10	3	7	71.43%
Scratching	2	1	1	14.29%
Poking	1	1	0	7.14%
Choking	1	1	0	7.14%
Total	14	6	8	100%

Table 3 above shows that out of the 14 identified self-harm cases, majority of respondents attempted to mutilate by cutting, 10 respondents or 71.43 percent of the population, 3 are males and 7 are females. Cutting is a form of self-injury – the person is literally making small cuts on his or her body, usually the arms and legs. The usual tool or object used in this form of self-harm are cutters, blades, knives, scissors and any other available pointed objects like rulers. It is usually done at home especially during times when their parent is not around and done in private places such as restroom and bedroom. There are also reports that this sometimes occur in the school's bathroom and is being inflicted on arms, legs or ankle.

According to the result, the next common form of self-injury and self-harm is scratching of oneself. This form of self-harm is being practiced by 2 of the respondents or 14.29 percent, wherein 1 of them is male and 1 is female. Scratching is known to be deliberately inducing scratches in a person's own body to inflict tissue damage and simply leave a mark with the use of sharp objects like pen, scissors, knife or any other sharp object. This act is done inside the classroom whenever they feel the need to express internal feelings in an external way. The injury is commonly inflicted on arms, legs or ankles.

3. What is the Psychological Distress distribution of the respondents in terms Subjective well-being, Problems and Symptoms, Life functioning, and Risk and harm?

Table 4: Psychological Distress Distribution

Scores	Subjective Well Being	Percentage	Problems and Symptoms	Percentage	Life Functioning	Percentage	Risk and Harm	Percentage	Overall Psychological Distress	Percentage
<b>Healthy/ Mild Risk</b> <1.25, or <1.0	140	46.5 %	209	69.4 %	171	56.8 %	193	64.1 %	223	74.1%
<b>Moderate Risk</b> 1.25/1.0 – 2.49	105	34.8 9%	83	27.6 %	119	39.5 %	100	32.2 %	72	23.9%
<b>Severe/ Very Severe Risk</b> >=2.50	56	18.6 %	9	2.9 %	11	3.6 %	8	2.7 %	6	1.9%
<b>Total</b>	301	100 %	301	100 %	301	100 %	301	100 %	301	100%

The table shows the distribution of the respondents in terms of the four dimensions (Subjective well-being, Problems and Symptom, Life Functioning and Risk and Harm). Based on the results of Table 4, almost half of the population or 140 respondents have high Subjective well-being, 105 respondents of the study have moderate risk and 56 are severe or severe risk. Subjective well-being seeks to measure an individual's feelings about oneself, feeling of crying, feeling of optimism in one's future and feeling of being overwhelmed by one's problems.

The Problem and Symptoms Dimension measures indicators of anxiety, depression, physical symptoms and trauma. Anxiety symptoms include tension, panic or terror, and nervousness. This dimension covers feelings of tension, anxiousness and nervousness that may also prevent a person in doing important things. This can be feelings of panic and terror; and inability to put to one side one's problems. This dimension also measures trauma by being disturbed having unwanted thoughts and feelings, and being distressed by unwanted images or memories. Results show that a seemingly high number of the respondents are on the

healthy to mild risk, 83 of which are at the moderate level and 9 are severe and very severe risk. This may mean that the participants have a healthy and appropriate response to life situations.

Life Functioning Dimension covers a general measure of close relationship and social relationship. It also measures the social support that an individual has and the extent of alleviation because other people. It gauges one's feelings of being able to cope when things go wrong; being happy with the things one has done and if one feels that he/she has achieved the things he/she wanted to. The results showed that more than half of the population, 171 have healthy to mild risk life functioning, 119 are in the moderate risk and 11 of them are severe to very severe risk. From these, it can be assumed that participants have good social support from other people, friends and family.

On the other hand, Risk and Harm Dimension measures an individual's being at risk to themselves or others by having thoughts of hurting oneself; have attempted hurting oneself physically or taken dangerous risks with a person's health; having thoughts and plans of ending one's life; being physically violent to others and threatened or intimidated another person. From the given table, the results of this study show that majority are in the healthy/mild group with 193 respondents, 100 are in the moderate risk and 8 are in the severe and very severe risk. This may mean that majority of the respondents may possess a healthy coping skill that enables them to regulate their own emotions and behaviors. Emotion regulation is the process by which behaviours, skills, and strategies, whether automatic or effortful, modulate, inhibit, and enhance emotional experiences and expressions (Gross & Thompson, 2007).

#### 4. What activity could be proposed based on the results of the study?

The current study suggests development of preventative interventions, programs that could aid the students in dealing with difficult emotions and situations. This may include wellness program and social-emotional skills program to scaffold the development of effective and contextually appropriate strategies for the said population. It can be proposed that there may be activities and programs not limited to the students, but also require the collaboration with other stakeholders such as parents, teachers and the community in fostering mental wellness and well-being.

Mental wellness is vital in the promotion of an individual's holistic development in the aspect of self-care. This study intends to eventually create a program that will enhance the wellness of the individual to create awareness on the different factors that contribute to holistic well-being and learn different coping strategies in dealing with life's challenges.

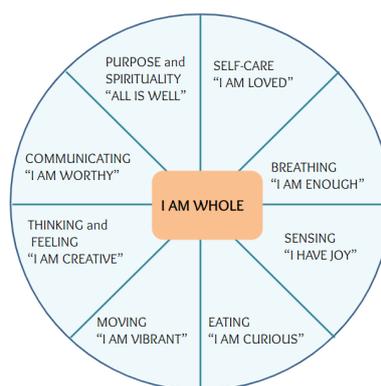


Figure 3. The Pillars of Well-Being

5. What is the outcome of the program?

Majority of them highly rated the program as organized, interesting, helpful and highly relevant to their present concern. The participants suggested having more interaction and socialization, and present additional relevant videos.

### Conclusion

The findings suggest that prevention program such as wellness intervention program to be implemented that promote skills to minimize risk-taking behavior such self-harm and self-injury. Schools must offer an accessible and convenient avenue for the delivery of self-harm prevention programs that could potentially be widely provided. Our results propose that schools should proactively focus upon reducing incidents of bullying and encouraging a positive and friendly environment particularly for those children and young adolescents who feel marginalized. Moreover, mental health awareness needs to be raised so that issues such as low mood, depression, anxiety and self-harm can be openly discussed.

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***Standardized Tests as Predictors of Academic Performance:  
Implications on the MCLS Testing Program***

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**Abstract**

As part of its periodic testing program evaluation and to support the institutional viability of a private school in Quezon City, Philippines, the school's Guidance Center examined the predictive value of the School Readiness Test (SRT) as its admissions tool in terms of its relationship with the Grade 1 academic performance. Likewise, the study looked into the predictive value of the English and Mathematics pre-test for Grade 1 which is administered through an outsourced partner of the school. Adopting a longitudinal predictive research design, this study examined changes on the quantitative data taken from the population over time. The data was analyzed using multiple linear regression at .05 significance level. Results indicate that there is a correlation between the standardized test scores and the participants' general academic average. Furthermore, SRT and achievement tests are predictive of academic performance. Implications on the school testing program were discussed and exploring locally developed assessment tools was recommended.

Keywords: Predictive Study, Standardized Tests, Academic Performance, Testing Program, Admissions, School Assessment

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## Introduction

Admissions is the first interaction between the school and potential students and their parents or guardians. During admissions period, parents or guardians find out more about the school's curriculum, programs and other offerings. In turn, the school assesses the child's readiness for its academic structure. This step helps align the expectation of stakeholders in maximizing the abilities of the student. Admissions is especially momentous for first graders as it marks facing bigger learning opportunities and challenges from their preschool experience. For the part of the school, especially private institutions, admissions is the lifeblood that sustains its programs and facilities. It is therefore crucial that entry-point evaluation balances the school's criterion for excellence and its openness to accommodating children's areas for development.

In Miriam College Lower School (MCLS), the written test is one of the integral instruments utilized during admissions. As such, the test material is subjected to periodic evaluation to ensure that it still corresponds to the evolving profile of the learners. Considering these, MCLS adopted the School Readiness Test (SRT) as its admissions test for school year 2014-2015 Grade 1 student applicants. SRT was chosen for its more updated and concise coverage of subjects and topics. Moreover, it is the same yearend assessment tool used by the Miriam College Child Study Center (MC-CSC) to evaluate their kindergarten students. It was then deemed to be potentially useful in efforts to compare and align data between the units.

Also, part of MCLS' testing program are the locally-developed standardized achievement tests outsourced through the Center for Educational Measurement (CEM), Inc.. These are administered to students from Grades 1 to 5. For Grades 1 and 2, students take the English and Mathematics tests. Grades 3 to 5 students take English, Mathematics, and Science tests. Results are presented to the community, especially to the Academic Committee, for their use in the continuous advancement of the unit's academic programs.

This study was undertaken in response to Miriam College Board of Trustees' directive to review the admissions processes to encourage more student applications. It was also a timely opportunity to utilize testing data to further support the unit's academic initiatives as well as the school's economic viability.

This research aims to examine the ability of both admissions and achievement tests in English and Mathematics to predict the students' academic performance in Grade 1. In particular, the research aims to answer the following questions:

1. Is the School Readiness Test (SRT) predictive of the MCLS Grade 1 academic performance?
2. Are the achievement tests in English and Mathematics predictive of the MCLS Grade 1 academic performance?
3. Which between the SRT and achievement tests is/are the better predictor/s of Grade 1 academic performance?

The outcome of this study will help evaluate the testing program and yield possible recommendations that could aid student admissions especially in Grade 1. Data could also be useful in helping students transition from Kindergarten to first grade and continuously support their development in MCLS.

The primary focus of this study is to assess the predictive value of the school's admissions tool in relation to the academic performance of the first graders. Generalizations provided in this

study are limited to the new students only. Other factors which may affect the participants' general averages could include age, personality, and preschool experiences. These will be part of the discussion of the study.

Many recent related literatures seem to point towards the opposite direction when it comes to administering standardized tests to early graders. In the USA, the contention seems to stem from the implementation of the *No Child Left Behind* Law which resulted to 'high stakes testing' wherein standardized tests results are used as determinants for grade retention, graduation, college admission, teacher employability and school performance, among others (Solley, 2007). Tying such consequence to an assessment tool led many to question the credibility of the test instrument as the only objective indicator of teacher effectiveness and student learning especially among young children (Marisco Institute for Early Learning and Literacy, 2010).

Christopher Tienken (2015) flagged the flawed process of school administrators to make multiple interpretations and critical decisions based on the results of one test. Instead, outcomes should be confirmed for group and individual validity by cross-referencing with other data sources, much like a three-legged stool that stands to prop up a balanced learning profile.

Concerns have also been raised on the effect of such stringent testing on young children. Fleege and colleagues (2003) observed Kindergarten students' behavior while taking a standardized test. They reported a significant increase in behaviors related to stress. These stress-related actions were notably decreased after taking the test. Assessment has also impacted Kindergarten teachers over the years. Bassok, et al (2016) found that compared to Kindergarten teachers in 1998, Kindergarten teachers in 2010 put more value on their individual students' achievement test performance in based on local, state and professional standards. They also give more importance on each student's performance compared to their peers.

There is also the issue of futility of testing young children to determine those who might be at-risk for academic difficulties. Frans and colleagues (2017) found that majority of students who were identified as "at-risk" in preschool became capable learners as they moved up to the early grades. This is similar to the results of the study of Anastacio (2017) where the later academic performance of low-scorers in the School Readiness Test for by third grade have improved. However, these findings do not diminish the value of tests in the school setting. William (2010) started his research report by saying that assessment is a key process in education. International Literacy Association (2017) recognizes the usefulness of standardized tests in assessing student achievement, comparing performance, evaluating programs and its interconnectedness to developing school policies and determining accountability. Assessment in early grades can also prove useful in identifying anchors in predicting reading abilities in later grades especially if done with the appropriate instruments. They also recommend testing at the end of kindergarten to ensure a more strongly related data to reading achievement than assessments at the beginning of kindergarten (Schatschneider et. al, 2004).

The recurring theme of these literatures points out that assessment has an important function in education. However, authorities should be very careful to consider the instrument's intended design, limitations and impact on the stakeholders. The tenet is that test scores should be helpful to the teachers, parents, and students in education (Cooley, 1991 in Haladyna, 2002). It was emphasized that with its increasing use and influence over time, the challenge is in

ensuring its logical use and valid interpretation. Moreover, one standardized test cannot determine all facets of a learning experience. Validating or alternative teacher-developed evaluation strategies are strongly recommended (ILA, 2017; Tienken, 2015; MIELL, 2010; Solley, 2007, Haladyna, 2002).

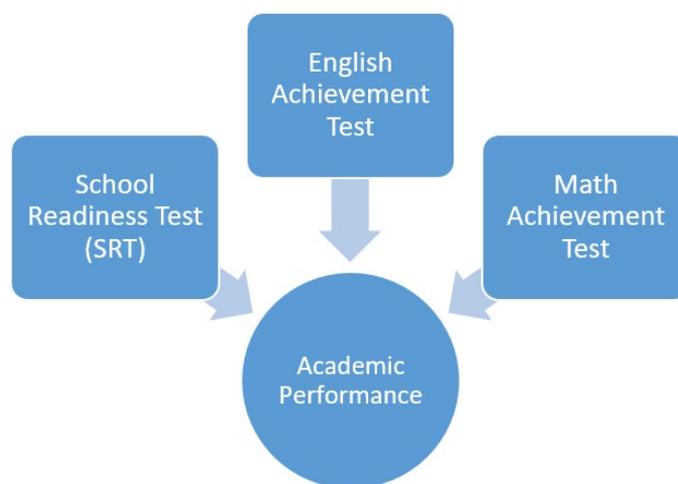


Figure 1: Conceptual Framework

Figure 1 illustrates the structure of this study with its aim to look at the ability of the school Readiness Test (SRT) and English and Math Achievement Tests in predicting the academic performance of students.

The following terms will be operationally defined as:

1. *Academic performance* – refers to the general average of the students at the end of a school year
2. *Standardized tests* – refers to the admissions (SRT) and achievement pre-tests from an outsource provider
3. *Admissions test scores* – refers to the overall SRT ratings obtained by the new student applicants
4. *Achievement test scores* – refers to the students' percentage of correct answers in English and Mathematics
5. *Indicators* – refers to the standardized test scores as predictors of academic performance

## Design

This study adopted a longitudinal predictive research design (Johnson, 2001). It aims to determine how well the standardized tests' scores are able to predict the academic performance of first graders for three consecutive school years. Trend study was used to examine change on the quantitative data taken from the population over time.

## Participants

A total of 319 first graders were the participants in this study. New students who have taken the School Readiness Test (SRT) as the admissions examination, and the achievement pre-tests

in Mathematics and English from SY 2015 to 2018 were the basis of the selection of participants. The formula given by Tabachnick and Fidell (2001) was taken into consideration:  $N > 50 + 8m$  (where  $m$  = number of independent variables).

## Measures

General averages represent the academic performance of the participants. These are computed by averaging the quarterly final grade of the Grade 1 students in all core subjects. Data was extracted through the Student Database Management System (SDMS) of the school.

Admissions examination for incoming first graders is administered by the school's psychometrician in one sitting. It assesses seven (7) individual readiness skills namely Vocabulary, Identifying Letters, Visual Discrimination, Phonemic Awareness, Comprehension & Interpretation, Mathematical Knowledge, and Developmental Spelling Ability. The SRT result is comprised of assessment classifications which serve as the basis for the overall readiness assessment of the students. The SRT obtained a .94 reliability score using the Kuder-Richardson Formula 21 which indicates a very high degree of internal consistency. Whereas, the standard error found for its total score is 4.9 raw score points (Scholastic Testing Service, Inc., 2004).

Standardized achievement tests, appropriate for the grade level, measure the acquired levels of knowledge and skills of the students in English and Mathematics. Pre-tests developed by the CEM, Inc. are administered within the first quarter of every school year. The students are required to accomplish these multiple-choice format group-test within the time limit specified by the examiner. The reliability indices of the K to 12 Achievement tests for English and Mathematics (Grade 1) range from .85 to .91. To validate, the final grades on the academic subject of the test takers are used as the external measure. Coefficients ranging from .31 to .83 indicate that the tests have concurrent validity (CEM, 2016). The achievement pre-test results are reported in Percent Correct (PC). This refers to the percentage of questions that the examinee answered correctly in each content area and cognitive skill in accordance to the learning competencies for a specific grade level prescribed by the national curriculum. The score ranges from 0 to 100 (CEM, 2016).

## Procedure

Primary data were accessed from and kept in the school's Guidance, Testing, and Research Center. In compliance to the Data Privacy Act of 2012, permission on the collection and utilization of data was acquired through letter to parents distributed before the administration of various guidance tests.

The selection of data corresponds to the criteria for selection of participants. Records of admissions and achievement tests results were retrieved from the student annual reports. New students in each section were identified and grouped according to school year. Statistical data analysis was employed to determine how well admissions and achievement test scores predict the academic performance of MCLS new students from SY 2015 to 2018. Relative contribution of each independent variable was identified for every school year as well. To examine whether the SRT ratings and achievement tests scores in English and Mathematics consistently predict the academic performance of the first graders, the trend for three consecutive school years was analyzed.

## Data Analysis

The ability of admissions and achievement tests scores to predict the academic performance of new students was analyzed using multiple linear regression at .05 significance level. This analysis was conducted on each set of scores per school year. Predictors were correlated with each other to eliminate multicollinearity. Tests for normality, linearity, and homoscedasticity were performed to verify the assumptions of the regression analysis. To test the hypotheses, the predictive power of the independent variables was identified, as well as its relative contribution to the academic performance. From the results, interpretations were drawn in view of the research questions posited in this study.

The results of the data analyses carried throughout the duration of the study are presented in through the following tables and figures.

## Descriptive Statistics

	SY 2015-2016			SY 2016-2017			SY 2017-2018		
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>
General Average	112	90.55	3.91	109	89.59	4.40	98	91.10	4.69
SRT	107	100.72	12.55	108	93.68	11.67	98	96.02	12.29
English	112	54.70	18.97	109	56.68	19.04	95	57.73	18.80
Mathematics	112	40.35	13.39	109	41.93	14.00	95	43.46	13.45

Table 1: Summary of Descriptive Statistics of the Variables

Table 1 shows the descriptive statistics of the predictors covering the participants' mean scores in the admissions and achievement tests for three consecutive school years as well as their general averages (GA). Although the number of new students decreases yearly, a trend of increase is noticeable in the mean percent-correct scores for English and Mathematics achievement pre-tests.

## Correlations

	SY 2015-2016			SY 2016-2017			SY 2017-2018		
	SRT	English	Math	SRT	English	Math	SRT	English	Math
General Average	.660*	.724*	.695*	.680*	.754*	.717*	.612*	.640*	.542*
SRT		.709*	.631*		.674*	.684*		.613*	.509*
English			.724*			.697*			.540*

\* $p < .05$

Table 2: Summary Correlation Table

The summary of the correlation coefficients is shown on Table 2. Significant relationships were found between results of admissions tests and achievement pre-tests scores in English and Mathematics across three consecutive school years. Note the very high correlations between English pre-test scores and the other independent variables in SY 2015-2016.

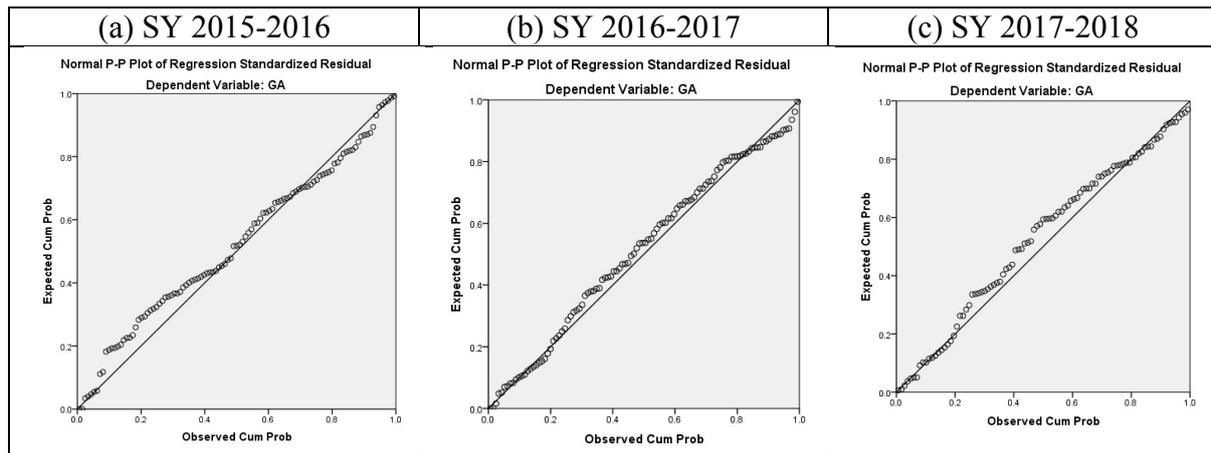


Figure 2: Normal Probability Plot of Regression Standardized Residual of General Average Which Show Normality

All data passed the tests of normality, linearity, homoscedasticity, and multicollinearity. Figure 2 shows the Normal Probability Plot of the academic performance in each school year. The reasonably straight distribution of the independent variables suggests that there are no major deviations from normality.

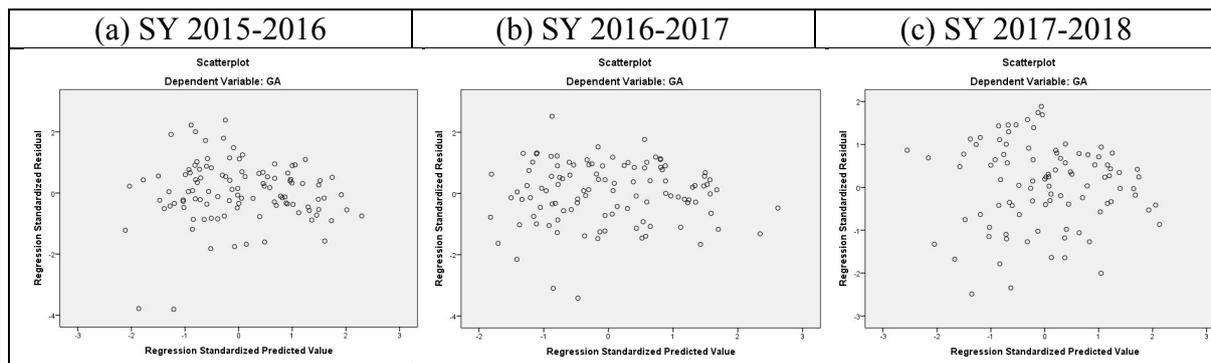


Figure 3: Scatterplot of Standardized Residuals Which Show Linearity and Homoscedasticity

Figure 3 presents the Scatterplot of the standardized residuals against predicted values per school year. Most of the scores are concentrated in the center which depicts a linear relationship between the variables. No clear pattern was evident in the distribution which implies that the data is homoscedastic as well.

To test the assumption of multicollinearity among independent variables which display too high correlations, the collinearity diagnostics were examined. The first value, Tolerance, indicates how much of the variability of the specified independent is not explained by the other independent variables in the model. The second value is the Variance inflation factor (VIF) which is the inverse of the Tolerance value. The Tolerance value of less than .10 and a VIF value of above 10 suggests the possibility of multicollinearity (Pallant, 2005). Looking into the collinearity statistics of the independent variables in SY 2015-2016, the Tolerance values of .468, .370, and .448, as well as the VIF values of 2.14, 2.7, and 2.23, respectively, indicate that there is no multicollinearity.

## Multiple Regression

Variable	SY 2015-2016		SY 2016-2017		SY 2017-2018	
	$\beta$	$t$	$\beta$	$t$	$\beta$	$t$
SRT	.223*	2.471	.203*	2.391	.294*	3.066
English	.345*	3.405	.416*	4.827	.350*	3.564
Math	.305*	3.315	.288*	3.297	.203*	2.250
$F$	53.406		66.797		32.083	
<i>Adjusted R</i> <sup>2</sup>	.597		.648		.498	

\* $p < .05$

Table 3: Relationship of Admissions and Achievement Pre-test Scores to General Average

Results revealed consistent positive correlations between general average and SRT scores from SY 2015 to 2018 ( $r = .66$ ,  $r = .68$ ,  $r = .61$ ). Likewise, English ( $r = .72$ ,  $r = .75$ ,  $r = .64$ ) and Mathematics ( $r = .70$ ,  $r = .72$ ,  $r = .54$ ) pre-test scores are strongly correlated with the new students' general average for three school years.

Table 3 presents the results of the multiple regression with standardized regression coefficients ( $\beta$ ),  $t$  value, and adjusted  $R^2$ . The model for academic performance in SY 2015-2016 displays a significant result,  $F(3,103) = 53.406$ , adjusted  $R^2 = .60$ . Data analysis showed that SRT ratings and achievement pre-test scores in English and Mathematics can explain 60% of the variance in the general averages of MCLS new students in SY 2015-2016. Persistently, the models for academic performance in SY 2016-2017 [ $F(3,104) = 66.797$ , adjusted  $R^2 = .65$ ], and SY 2017-2018 [ $F(3,91) = 32.083$ , adjusted  $R^2 = .50$ ], are also significant. The test scores account for 65% and 50% of the variance found in the academic performance of the participants for the following two school years.

Though significant, admissions test scores seem to contribute the least in the prediction of the new students' academic performance among all indicators. Beta coefficients of SRT ratings range from .20 to .29 for three academic years. Whereas English and Mathematics beta coefficients range from .20 to .41. In SY 2015-2016, a unit increase in the SRT score will predict a .223 increase in the general average of new students. The next couple of years, every unit increase in the admissions test score suggested a .203 and .294 increase in the students' academic performance.

Looking into the relative contribution of the achievement pre-tests scores, English appears to be the most effective indicator of academic performance of MCLS new students. Its beta coefficients are .345, .416, and .350 from SY 2015-2016 to SY 2017-2018, respectively. On the other hand, a decreasing trend of beta values emerged from the annual Mathematics pre-test scores (.305, .288, .203).

## Conclusions

Standardized testing among young students in the United States is recently under fire for its observed negative impact on the test-takers well-being. 'High-stakes testing' is also criticized for its tendency to depend on a single test result to determine major administrative decisions.

Results of US government-mandated assessments likewise impacts academic systems such as student retention and teacher employability (Tienken, 2015; MIELL, 2010; Solley, 2007).

It seems clear, however, that the disapproval is not on the testing itself but rather, on the use of gathered data. There is also substantial scholastic recognition for the role of standardized testing in the educational setting. The emphasis is put on the responsible use of the instrument and the data it yields. While there is no perfect assessment tool, an appropriately matched test content and curriculum or instruction could yield relevant data for policy holders, educators and the public (Haladyna, 2002). Each assessment tool has to be considered for its intended purpose and population. While standardized tests are assumed to be valid and reliable, other sources of student data should not be discounted such as teacher observation and student portfolio because this additional information outside of the usual pen-and-paper measurement provide a view of various and complex aspects of learning.

In the Philippine setting, many established private educational institutions continue to rely on standardized tests as an assessment approach for student admissions. As a premiere school for Filipino girls, MCLS is taking this research as a step to evaluate the appropriateness of the practice given the evolving profile of learners and emerging indicators that could call for innovative and alternative methods.

In response to the research questions, data analyses indicate all tests are predictive of Grade 1 students' academic performance. However, while it is being utilized as the primary admissions tool, the School Readiness Test (SRT) is the least predictive of MCLS Grade 1 students' academic performance. Statistically, CEM English and Mathematics pre-test are more strongly correlated to the Grade 1 students' grades than SRT. This could be because first, a CEM test is developed in the Philippines—based on the prescribed curriculum of the Department of Education and validated with the local population. Secondly, CEM tests are more exhaustive, covering fifty (55) items each for English and Mathematics. Each subject allots at least 60 minutes of test time. On the other hand, the SRT has 126 items covering seven learning areas of school readiness. A student typically finishes this test in one sitting within an hour and a half.

Considering the standardized testing issues mentioned in researches, it must be noted that SRT is only one of several aspects considered during the MCLS admissions process. In short, a 'failing' mark in this test does not automatically bar a student from being accepted into the school. This implies that the unit recognizes that there are many facets of each child's being beyond the ones reflected on their test scores.

In conclusion, the use of standardized testing as part of the admissions process of MCLS remains a sensible procedure that yields practical data for its administrators. In review of the findings and related studies, this research proposes the following for the continued development its admissions procedures and the Guidance Center's testing program:

1. Development of admissions interview rubrics – Set questions that aim to draw out specific information from the student applicant such as speech and language abilities, reading, and comprehension skills, and ability to follow simple instructions.
2. Consider the possibility of developing and administering teacher-made tests to supplement the admissions test. Locally-developed tests would help assure that the items would be closely-aligned to the existing standards and curriculum of MCLS and include subject areas that are not typically covered by standardized testing (i.e. Araling Panlipunan and Filipino).

3. Continue the periodic evaluation of admissions test procedures to balance the academic benchmarks while keeping up with the evolving profile of the learners and supporting institutional viability.

The research findings will be submitted to the MCLS administration and may be presented to the community to provide information regarding the strengths and challenges of school's admission process. The authors recommend the conduct of further studies with a larger sample size, possibly including all Grade 1 students as a bigger population could show a more distinct profile of the learners.

Observing the new students' performance as they progress to higher grade levels is also helpful in possibly identifying consistent obstacles and effective interventions to their learning.

Lastly, with baseline data from first grade, a longitudinal study tracking the students' growth during their stay in the lower school unit can give varied perspectives especially when analyzed in relation to programs and interventions implemented within the same period.

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***Usage Application of Multimedia for Learning Values of Thai Literature to Develop Learning Achievement for High School Students***

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**Abstract**

This qualitative research had designed multimedia materials for efficient learning of Thai Literature in high school students. The created multimedia materials were based on four classical Thai Literature, including Niras-phukhao-thong; Phra-aphai-manee; Lilit-taleng-phai; and Ma-tha-na-pha-tha. 540 Thai high school students, from three schools, were experimented in using the designed materials. Scores of learning achievement of students after using the multimedia were significantly high, 0.05 statistic level, compared to the pre-test. Eight processes of producing the multimedia materials were: 1) producing the storyboard; 2) storyboard reviewing by scholars; 3) storyboard revising; 4) discussion on contents and media; 5) multimedia materials designing; 6) production of the materials; 7) materials assessment by scholars; and 8) adjustment and completion of the materials. Evaluation of the completed materials, by scholars, was excellent and efficient for using in class.

Keywords: Multimedia, Learning Achievement, Thai Literature

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## Introduction

The current information technology society, compiling of modern knowledge and broad communications technology, assists people to access knowledge and self-development through various learning materials and knowledge resources. The 2020 - 2022 strategic plan of the Fund for Educational Technology Development, the second strategy, stated three measures in applying information and communications technology (ICT) for teaching and learning in order to achieve the strategy as the following: 1) to promote and enhance opportunity to and equality of efficient education for all-age learners and the public by digital technology (or Digital Society). 2) To create media and compile media banks; digital resources; and media convergence for lifelong learning accessible by the public through telecommunication and broadcasting systems. 3) To develop potentiality of the public to apply digital technology usefully and creatively and to be able to analyze and digest information of the broad and free digital society. (Secretarial Office, Fund for Educational Technology Development, Ministry of Education. 2020: 46-47)

To conform teaching of Thai language to the strategic plan above, information and communications technology (ICT) and educational technology are required, for example Computer Assisted Instruction (CAI); Web Based Instruction (WBI); Electronic Learning (e-learning); Mobile Learning (m-learning), and so on. The popular and most used technology applied for teaching and learning is multimedia, which refers to the use of computers and software to convey meanings through various media, such as colorful text; graphic pictures; motion pictures; sound effects; and videos. This multimedia technology could be interactive by users controlling or reacting to the media through keyboards; mouses or pointers. (Pallop Piriyasurawong. 1999: 12) Multimedia seems to make lessons lively and interesting.

Three merits of multimedia materials include: 1) they allow learners to respond promptly to lessons, and reactions could be assessed right away. 2) Multimedia materials effectively occupy attention of learners and assist them to consequently achieve learning objectives. 3) They are handy for both teachers and learners; also some multimedia materials could differentiate learners since they emphasize on individual learning or teaching oneself. Creating multimedia materials is significant; they are required to correspond to the lessons and learning objectives. For learning Thai literature, various contents and objectives are studied, including aesthetic and social values and importantly the moral of stories. Producing multimedia materials for learning Thai literature would be greatly beneficial for appreciation of Thai literature and effectively motivate awareness of its three aspects of values, aesthetic; social; and moral, for human lives.

Based on stated statements, the researchers desired to create multimedia materials for learning Thai literature in order to gain high learning achievement for high school students. The research question aimed to find out how multimedia materials for learning Thai literature affect the learning achievement of high school students.

## Research Objectives

1. To create standardized multimedia materials for learning Thai literature of high school students
2. To develop learning achievement of high school students in Thai literature by efficient multimedia materials

## Research Hypothesis

1. The created multimedia materials for learning Thai literature is standardized, achieving the benchmark of 80/80
2. The post-test learning achievement of the sample group in Thai literature after application of the created multimedia materials is higher than the pre-test

## Scope of Research

### 1. Population and Sample Group

- 1.1 Population – 540 high school students, 270 from M1 – M3 levels and 270 from M4 – M6 levels.
- 1.2 Sample group – the population was purposively selected from three schools including Rachawinit Bangkok School, Bangkok; Ratanathibate School, Nontaburi; and Rachawinit Suvarnabhumi, Samutprakarn.

### 2. Scope of Content

Four classical Thai literature were selected for designing multimedia materials, including Niras-phukhao-thong; Phra-aphai-manee; Lilit-taleng-phai; and Ma-tha-na-pha-tha.

### 3. Related Variables

- 3.1 Primary variable – the created multimedia materials of Thai literature
- 3.2 Dependent variable – the higher learning achievement of Thai literature of the high school students after using the created multimedia materials

## Terms and Definitions

1. Development of learning referred to changes of forms; methods; techniques; steps; and processes of learning and teaching to be more efficient.
2. Values of Thai literature referred to three aspects of value, including aesthetic; social; and moral, students gained after learning literary works
3. Multimedia materials referred to composing of various media, text; images; animated pictures; sound; and videos, through computing processes aiming to interactively convey meanings to learners and assist them to achieve learning objectives.

## Research Methodology and Processes

### 1. Research tools

- 1.1 an evaluation form of multimedia materials for learning Thai literature
- 1.2 exercises in the form of multimedia materials for learning Thai literature
- 1.3 pre-test and post-test forms on multimedia materials for learning Thai literature

### 2. Research processes

- 2.1 Storyboards on learning classical Thai literature, four titles, were designed and created as multimedia materials.

- 2.2 The multimedia materials were assessed and commented by scholars.
- 2.3 Completed multimedia materials were produced and ready for being applied on the sample groups.
- 2.4 The multimedia materials on four classical Thai literature were used after the sample groups completed the pre-test, and then the post-test was evaluated.

### **Expected Benefits**

Efficient multimedia materials on four classical Thai literature, increasing learning achievement, were expected to be obtained.

### **Research Results**

#### **1. Multimedia materials production and assessment**

##### **1.1 Production of the multimedia materials**

Firstly, the storyboard presenting contents of the four classical Thai literature, in the scope guided by research consultants, was made by experienced teachers of Thai language and educational technology experts. Then, resources were gathered for the production. Typical forms and techniques used in producing the multimedia materials were captions, graphic pictures, cartoons, animations, photos, motion pictures, and videos; and sound recording of poems reading and voices of narration. Many computer programs were applied in creating the completed materials, for example the Photoshop; video making; sound mixing; animation creating; interactive making; and flash animation, etc.

##### **1.2 The designed multimedia materials**

Each of four classical Thai literature was distinctively studied and designed in multimedia forms; details were as the following.

###### **1.2.1 Niras-phukhao-thong**

The route and its narration according to the poems in *Niras-phukhao-thong* were made in a multimedia map form showing the journey from Bangkok to Ayudhaya along Chaopraya River. Also, a matching game was designed as exercises.

###### **1.2.2 Phra-aphai-manee**

A video presenting a visit to the Thai Human Imagery Museum in Nakornprathom guided by Sinsamut, a character in *Phra-aphai-manee*, focusing on characters and stories of the literature was made. A designed matching game in multimedia form was added as exercises.

###### **1.2.3 Lilit-taleng-phai**

Parts of *Khan Kluiay*, a 3D computer-animated film, relating to King Naresuan the Great were made as video clips to present stories and contents of *Lilit-taleng-phai*. Multiple choice and subjective exercises were added, as well.

### 1.2.4 Ma-tha-na-pha-tha

Video clips from the play *Ma-tha-na-pha-tha* were made to present stories and contents of the literature; and exercises, multiple choice and subjective, were also added.

### 1.3 Assessment of the multimedia materials

When all created multimedia materials were produced, three scholars, research consultants, provided evaluations and comments, details as the table number 1.

Table 1: The Results of the Assessment of the Quality of Mixed Media for Learning the Value of Thai Literature

Aspects of Assessment	Title 1	Title 2	Title 3	Title 4	Average score
<b>1. Contents</b>					
1.1 Academic faithfulness	4.67	4.33	4.33	4.67	<b>4.50</b>
1.2 Objectives-oriented	4.00	4.33	4.67	4.67	<b>4.42</b>
1.3 Content adequacy for learners	4.67	4.67	5.00	4.33	<b>4.67</b>
Aspects of Assessment	Title 1	Title 2	Title 3	Title 4	Average score
<b>2. Language usage</b>					
2.1 Grammatical correctness	4.00	4.67	4.33	4.33	<b>4.33</b>
2.2 Language appropriateness	4.67	4.33	4.00	4.67	<b>4.42</b>
<b>3. Presentation techniques</b>					
3.1 Righteous and understandable	4.33	4.33	4.00	4.33	<b>4.25</b>
3.2 Attractive and approachable	4.67	5.00	5.00	4.33	<b>4.75</b>
3.3 Efficient sound effects	4.67	5.00	4.33	4.33	<b>4.58</b>
<b>4. Creativity</b>					
4.1 Creative, unique and inspiring	4.67	4.67	4.33	4.67	<b>4.59</b>
4.2 Presentable and beneficial	4.67	5.00	4.33	4.33	<b>4.58</b>
<b>Average score</b>	<b>4.50</b>	<b>4.63</b>	<b>4.43</b>	<b>4.47</b>	<b>4.51</b>

After the assessment, all comments were taken to improve the created multimedia materials and to make them completed for the application with learners. According to the evaluation, it was noticeable that all created multimedia materials for the four classical Thai literature gained high scores in all aspects. Two causes noted were 1) the created multimedia materials were trendy, matched interests of learners and made the classical literature lively on computer media. 2) The research consultants particularly concerned on the storyboard presenting contents of the four literature. Comments, corrections and suggestions were provided in detail and thoroughly,

so the created multimedia materials profoundly presented three major values, aesthetic; social; and moral, of the four classical literature.

## 2. Application of the Created Multimedia Materials

The created multimedia materials were applied with the sample group, purposively selected, of 540 students from three high schools, including Rachawinit Bangkane School, Bangkok; Ratanathibate School, Nontaburi; and Rachawinit Suvarnabhumi, Samutprakarn. The sample group was divided into two levels: 270 students (90 from each school) were M1 to M3 level; another 270 students (90 from each school) were M4 to M6 level.

### 2.1 Efficiency of the Multimedia Materials

Assessments of the created multimedia materials were evaluated twice, once after some lessons and another after all lessons completed. The result was shown as the table 2.

Table 2: The Effectiveness of Multimedia Materials for Learning the Value of Thai Literature

	M1 – M3 Level			M4 – M6 Level			Average ( $\bar{x}$ )	Benchmark
	School 1	School 2	School 3	School 1	School 2	School 3		
<b>Early lessons</b>	84.90	90.79	86.02	89.47	88.98	86.09	<b>87.71</b>	80
<b>Lessons completed</b>	88.42	89.10	90.00	86.04	89.80	90.83	<b>89.03</b>	80

The average score of the first evaluation, on process learning, was 87.71% while the second evaluation, learning completed, was 89.03%. This meant that efficiency of the created multimedia materials was 87.71/89.03, compared to the benchmark of 80/80. So, the first hypothesis was proved true, the efficiency of the created multimedia materials was higher than the benchmark.

### 2.2 Learning Achievement by the Multimedia Materials

To show the learning achievement resulted from the created multimedia materials, students took the pre-test before the application and the post-test after the learning completed.

Table 3: Comparison of Learners' Learning Achievement of Thai Literature Value Before and After Learning with Multimedia Materials Learning Thai Literature Value

	M1 – M3 Level			M4 – M6 Level			Average ( $\bar{x}$ )
	School 1	School 2	School 3	School 1	School 2	School 3	
<b>Pre-test</b>	11.58	8.35	17.09	16.67	12.67	17.22	<b>13.93</b>
<b>Post-test</b>	26.53	28.71	28.71	26.84	26.94	27.25	<b>27.50</b>

The result, as the table number 3 shown, proved the second hypothesis true that the post-test score was significantly higher than the pre-test score, at 0.05 statistic level.

## Conclusion

The created multimedia materials for efficient learning Thai literature passed the evaluation criteria. After application of the materials, the post-test scores showed significantly different, 0.05 points, from the pre-test scores. Both factors reflected efficacy of the created multimedia materials, which were well designed by related scholars, including lecturers of classical Thai literature; educational technology experts; and research consultants. Also, since the planning stage the researchers had studied and surveyed problems and requirements of learners, and then held a discussion with experienced teachers of Thai literature in order to gain important teaching techniques according to the curriculum. From the meeting with educational technology experts and scholars of Thai literature, the created multimedia materials were designed to emphasize on three important values, aesthetic; social; and moral. These made the created multimedia materials unique and efficient.

## Discussion

In conclusion, the created multimedia materials were made by various techniques, including drawing of characters; video making; game designing; making of cartoons, animation, motion pictures, graphic pictures; applying clips from movies, plays, television dramas; sound recording of talks, conversations, poems; and so on. The research results were agreeable with Sucharit P. and Saijai I. (1995: 230 – 238) who stated the idea that since Thai literature is a kind of cultural heritage, so learning of Thai literature should be emphasized on inspiring appreciation on its values, and appropriate media should be applied for the efficient learning.

Also, the research results corresponded with some relevant researches on application of technological media for learning Thai literature. For example, *Learning Achievement of the Six Hats Teaching Method Compared to the Normal Teaching Method with Computer Assisted Instruction (CAI) on Guan Yu Allying Cao Cao, an Episode in Romance of Three Kingdoms, of High School Students (M6)* by Songrith C. (2010); *Lessons on Ma-nus-bhum, a Part in Tribhum-pra-ruang by Computer Assisted Instruction (CAI) for High School Students (M6)* by Pimnicha P. (2010); and *Multimedia Lessons on Ramayana by Computer Assisted Instruction (CAI) for High School Students (M3)* by Piyoros M. (2007). Results of the three mentioned researches stated that after learning Thai literature through technological media, learners gained positive attitude toward Thai literature and high learning achievement since the media attracted good attention from learners. In conclusion, along with other relevant researches, the results of this research reinforced the notion that technological media well assisted in conveying meanings, contents, and values of Thai literature. This suggested that by the support of technological media, the values of Thai literature would be granted to endless generations.

## Suggestions

1. A research on Enhancing Knowledge of Producing Multimedia Materials for Learning Thai Literature for Primary School and High School Teachers should be conducted.
2. A research on Enhancing Knowledge of Producing Multimedia Materials for Learning Thai Literature for Teachers Teaching Thai Language to Foreigners should be conducted.

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***Technical Vocation Education and Training (TVET) in Changing Times, a Critical View of Prior Learning as a Link to Entrepreneurship and Employment***

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**Abstract**

For many countries, lifelong learning is a key component to building the human capital that is innovative and competitive in the fast-changing global economy. Most people's learning take place through non-formal and informal means, whether at work, home, or elsewhere. In many developing countries with their high school dropout rates, majority of people acquire workplace skills through informal means. Education and training play a fundamental role in Kenya's development, it is not possible for any country to achieve sustainable economic advancement without a substantial investment in education and training. People improve the quality of their lives if their productivity improves by adopting entrepreneurship and uptake of technology. Artisans need to be trained to have an entrepreneurial attitude, measured by their opportunity recognition, risk cognition, start-up skills and networking. Entrepreneurial abilities are reflected by technology absorption, opportunity start-up and human capital. An entrepreneurial attitude is a distinctive strategy and implies process innovation, product innovation, high growth, risk capital and internationalisation. This research paper critically views prior learning as a link to entrepreneurship and employment by presenting analysed data collected over a three-month period from *Jua Kali* artisans operating in the Eastlands of Nairobi, Kenya. The analysed data presents *Jua Kali* artisans' business management skills and how it affects their Performance. This research paper is a critical view of prior learning as the missing link to entrepreneurship and employment creation in a changing world.

Keywords: Prior Learning, Informal Sector, Technical Vocation Education and Training, Entrepreneurship, Employment

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## Introduction

With more jobs being created in the informal sector due to its expansion coupled with the fast-growing technological landscape. There is need to provide artisans with reskilling and upskilling pathways towards new employment. Identification of skills gaps, development and honing of these skills by government and other skills providers by embracing Recognition of Prior Learning (RPL) will improve artisan's skills since most of them have acquired their skills through apprenticeship in the informal sector. Entrepreneurship and IT skills are often ignored by skills providers and yet they are crucial and necessary in the growth of the informal sector businesses. This research is a critique of prior learning as a link to entrepreneurship and employment.

### 1. Background to the Study

People are learning constantly wherever they find themselves thus they accumulate knowledge skills and competencies throughout their lives beyond the formal learning settings such as vocational learning institutions, schools, and universities. There is need to establish assessment systems of what people have learnt outside educational systems, the modern working environment requires lifelong learning in different contexts and diverse situations (Boahin, 2018: 26-33). Internationally, there is a concern about youth unemployment and the need to enhance skills training among the youth to enhance their employability (Niall, 1997). The ILO (2020;1-12) has raised this concern and asked the international community to come up with policies aiming at generating decent work opportunities for all with an emphasis in facilitating the transition from education and training to work for young people. In most cases learning is deemed to take place in formal settings and environments, but there is also a lot of learning taking place in informal setups (Magidi and Mahiya, 2021:5-12). There are people who cannot put their acquired learning into full use because they are unable to prove their capabilities easily to others especially those who work in the informal sector. Workers in the informal sector neither have income nor the time to afford training, their potential in productive capacity is reduced (Bardak and Rosso, 2019). Recognition of informal and non-formal learning does not create human capital, but recognition helps the stock of human capital to be more visible and valuable to the wider society. Recognition provides validation of competencies which in turn facilitate entry to formal learning, it provides greater visibility and value of the outcomes and competencies of people in the labour market. It makes it easier for workers and employers to match skills to jobs (Braňka,2016;18-26). Recognition involves identification and documentation, ascertaining/establishing what someone knows or can do, validation and finally certification. There is evidence that there is a skill-mismatch and skills gap in many countries (Jayaram, et al, 2017:55-75). However very little has been done in the case of Kenya to identify the skill mismatches and the skill gaps regarding the requirements of industries.

#### 1.1. The SDGs and Technical Vocational Education

One path to gain skills is through Vocational Education and training (TVET). Vocational education through TVET is understood as training for skills development relating to a variety of fields, for instance, for services and production. TVET can take place at secondary, post-secondary and tertiary as part of lifelong learning as asserted by UNESCO-UNEVOC (2020:12-41). Under the millennium development goals (MDGs), the world achieved tremendous progress. However, some MDGs have not been achieved and hence the emergence of Sustainable Development Goals (SDGs). The informal sector encompasses a diverse and huge phenomenon in a variety of forms across many economies, it constitutes 90% of SMEs

worldwide. It is a major characteristic of labour markets worldwide employing millions of people in conditions of informality (ILO, 2021). Many of the SDGs can be achieved through SDG number 4 (quality education) and SDG number 8 (decent work and economic growth) through quality education (Srinivas, 2021). The technical and vocational education can address the issue of skills shortage to achieve the SDGs. With right policies and skill strategies, TVET can be a means of transmitting the right mind-set and attitude among TVET trainees (ILO, 2021).

## **1.2. Technical and Vocational Education and Training in the Times of COVID-19**

Technical and Vocational Education and Training (TVET) was affected during the COVID-19 pandemic, 1.2 billion students were affected by school closures, they had to take classes remotely (Hoftijzer et al, 2020). However, the learning alternatives which were explored, could not replace the face-to-face classes. Given that TVET emphasizes on work-based learning and acquisition of practical skills. Learning outside the classroom was affected by lack of access to electricity, internet connectivity, devices, or media, learning platforms and the ill preparation of instructors and student for remote learning (ILO and World Bank, 2021). The TVET students remote learning got complicated since TVET learning focuses on practical skills and work-readiness which made remote learning particularly challenging. Practical learning requires learning-by-doing, in school-based workshops and laboratories or through hands-on experience at the workplace (Hoftijzer et al, 2020). During the pandemic, the digital divide between rural and urban areas was noticed, learners living in remote areas did not benefit from remote learning due to connectivity issues and lack of devices. Effective distance learning platforms and quality of pedagogical resources to support remote learning and instruction were lacking in TVET institutions especially deploying them in a national scale. TVET instructors were not prepared for remote instruction due to lack of preparedness besides low digital skills (ILO and World Bank, 2021). The sudden swift from face-to-face learning to online learning and the noticed inconsistencies in access to distance learning modules have the likely hood of deepening inequalities among learners in terms of access and quality of training.

## **1.3. Impact of Covid 19 on the Informal Sector**

Due to the containment measures put in place by various governments to reduce the spread of COVID 19, about 2 billion workers and business owners in the informal economy stopped working as working remotely was not an option. At the same time, they were faced with the dilemma of dying from hunger or from the virus (ILO, 2020a). It is estimated that by April 2020 close to 1.1 billion workers in the informal sector lived in countries that had a full lockdown and an additional 304 million in countries that had a partial lockdown. These workers represent 67% of informal sector employment. With full, partial, and weak measures to control the spread of covid 19, estimates show that 76% of employment in the informal sector worldwide was significantly affected by the lockdown measures (ILO, 2020a).

The covid 19 pandemic affected small craftsmen such as mechanic, carpenters, fabricators etc who constitute 40% of total informal employment worldwide, but more than two thirds in developing countries (ILO, 2020b). Measures by some governments to support income and sustain economic fabric were out of reach for business owners and worker in the informal sector. Without social protection, legal recognition, provision of stimulus packages or business subsidies, tax breaks and other income protection measures, the informal sector was severely affected by the pandemic. The informal economy plays a great role in skills training for many young people, whom it is the only way to acquire relevant skills for the world of work (ILO,

2020b). The covid 19 pandemic slowed the informal sector economy growth and the acquisition of skills.

## **2. The Informal Sector and Skills Training**

The informal sector is directly and indirectly addressed in the Structural Development Goal number eight which addresses “*sustained inclusive and sustainable economic growth full and productive employment and decent work for all*”. It is estimated that half of the world’s population lives in poverty (US\$2 a day). In many places having a job does not guarantee one the ability to escape poverty, many people work in substandard working conditions which often are related to poverty, inequality, and discrimination (ILO, 2020c). Growth of employment in the informal sector is dependent on rates in territorial, cross-industry and intersectoral employee mobility between formal and informal sectors which affect the sustainable development of the economy and the labour market. The study of territorial and dynamic features of employment in the informal sector of regional labour markets is very important, because the growth of the informal sector has an impact on the productivity, living standards, income and tax revenues and leads to the growth of the informal sector employment (Karpushkina et al, 2021). The informal sector constitutes about 80% of the total workforce in Kenya (Okungu and McIntyre, 2019), the Mercy corps estimate the informal sector to constitute 83.6 % (14.9 million workers) of the working population (Mercy corps, 2019). One of the main activities taking place in the informal sector in Kenya is skills training.

### **2.1 Recognition of Prior Learning (RPL)**

Many people are disadvantaged in the absence of recognised qualifications in getting decent jobs, accessing further education, even though they may have necessary skills and knowledge. Recognition of prior learning (RPL) can help skilled people who don’t have any recognition for their skills acquire formal qualifications that match their skills and knowledge. Once skilled people are certified for their skills and knowledge, they can improve their employability, social inclusion, and self-esteem. Increasing the prospect for inclusion in the labour market helps employers access skilled personnel and the government have better assurances of competitiveness, economic growth, social inclusion, and equity, many countries have implemented RPL systems (Ashwani, 2015). Without recognized qualifications, many young people face serious disadvantages regarding finding decent jobs, migrating to other regions, and accessing further education. Most formal education systems do not recognize nonformal and informal learning. Lack of recognition of skills acquired through nonformal and informal means hinders human capital development and leads to its under-utilization.

Prior Learning (RPL), also known as Prior Learning Assessment and Recognition (PLAR) is a process used to identify, assess, and certify RPL candidate’s knowledge, skills and competencies acquired in non-formal or informal learning, such as work or life experiences, against prescribed standards or learning outcomes (Republic of Kenya, 2020). Most countries are recognizing that learning is continuous, it does not take place in the classroom alone but in sector wide and sector deep both in formal, informal, and non-formal settings. The concept of RPL is defined differently in different countries due to the differences in usage and strategies of implementation (ILO,2018). From the beginning of the current millennium, both in developing and developed countries Recognition of Prior Learning (RPL) has been receiving renewed attention. Due to globalization and migration, there is increased need for mechanisms for recognition of qualifications across borders. There is an increased emphasis on lifelong learning, as more and more people desire to upgrade their skills set for relevance. Attention to

the informal economy has given rise to renewed interest in RPL and its potential to help in the move towards formalization (ILO, 2018).

Recognition of prior learning (RPL) is the process used in identifying, assessing, and certifying a candidate's knowledge, skills and competencies acquired in a non-formal or informal learning, such as from work or life experiences against prescribed standards or learning outcomes (Republic of Kenya, 2020). Recognition of prior learning is multi-contextual, mobility, entry into a learning institution for further learning, personal development, advancement in the workplace credit award to a qualification and self-esteem. People who fit in the RPL are; retirees, people in the informal sector, youth out of school, educated people, asylum seekers, and people who have never been to school. Recognition of Prior Learning process considers one's existing work experience, existing qualifications, and life skills experience. Underpinning the RPL is the concept of lifelong learning which is active, voluntary, ongoing, and self-motivated pursuit of knowledge to develop oneself to be able to solve problems in life and employment (ILO, 2015).

## **2.2 Unemployment in Kenya**

Kenya has made some notable progress in poverty reduction in the last two decades, more needs to be done. The reduction of poverty levels from 52.3 % in 1997/98 to 36.1 % in 2015/16 is commendable, these poverty levels are still too high, more efforts are needed to reduce it further. The poverty rate among Kenyan youth is estimated at 29.1% (Kippra, 2020;1-3). The United Nations defines youth as the age-group between fifteen and twenty-four inclusive, which is the mostly used definition in employment statistics. Youth is also understood as the transition from dependence of childhood to adulthood independence. Youth in relation to education and employment is a person leaving compulsory education and finding his first job. An unemployed person is one who has not worked for one hour during the short reference period and is available for and actively seeking work (UN,2020; ILO, 2020:18-78).

Kenya's population below the age of 35 years is estimated at 75%, which is an asset if trained in skills (KNBS, 2019). Kenya's unemployment rate is estimated at 22.2% for those in the age group between 15 and 24 years (UN, 2017). From the MoEST- National Education Sector Plan (2015), 89% of all those entering the labour market have no formal training and hence lack skills, this constitutes 1.2 million youth who enter the labour market without any formal training or skills.

## **2.3 Recognition of Prior Learning (RPL) in Kenya**

In Kenya there are concerns about skills mismatch between the skills youth acquire and labour requirements which make it difficult for the young people to succeed in the world of work. The National Industrial Training Authority (NITA) has been conducting RPL assessment since 1959, under certain local and overseas training schemes for artisan trade tests, craft, and technician certificate courses, identified leadership courses and various apprenticeships for workers already engaged in Industry. This policy is expected to enable the national coordination and harmonization of RPL activities focusing on research, support, awareness and publicity, advocacy, and the mainstreaming of RPL in the Kenyan Education and Training Legal Framework.

The Kenya National Qualifications Authority (KNQA) as an institution is established under the Kenya National Qualifications Framework Act No. 22 of 2014. Section 5 (1) and Section

8 (1) of the KNQF Act. This authority is tasked with the co-ordination, supervision, development of policies on national qualifications at the same time develop a system for assessment of national qualifications. The authority is also tasked with the recognition of attainment of competencies including skills, knowledge, attitudes, and values, promote the recognition of national qualifications internationally. Prior learning is a response to equitable education and training system that facilitates access, mobility, progression, and fair chances to the disadvantaged, discouraged and traditionally marginalized groups.

Many young people in Kenya end their formal education prematurely and end up lacking foundational skills necessary to succeed on the job. Only 17.97% of Kenya Certificate of Secondary Education (KCSE) graduates proceed to universities and 82.03% join Technical Vocation and Training (TVET) institutions and the informal sector as apprentices. In 2019 a total of 689,007 candidates sat the KCSE and out of this number only 18% (125,463) attained a grade C+ and above and thus secured placement in universities as government-sponsored students. The remaining 563,544 (82%) were eligible for placement in TVET institutions to pursue diploma, craft certificates and Artisan Certificate levels. In 2020, a total of 737,527 candidates sat the KCSE examination, 142,540 (19.3%) attained the minimum university entry grade of C+ of which 128,073(17.4%) were placed to join public universities and 6,617(0.9%) TVETA institutions. The remaining 602,837 (81.7%) were not placed (Oduor, 2021), it is normally assumed that they will join artisan and craft courses. However, TVET courses do not attract many students, the majority join the informal sector directly and acquire skills through apprenticeship. Historically, most Kenyans desire to join universities so that they attain qualifications that will enable them secure white-collar jobs rather than join TVET institutions (Momanyi and Riechi, 2017).

The government of Kenya allocated kshs 300 million in the year 2018/2019 for loans to TVET applicants to apply and get allocated for courses of their choices in TVET institutions in Kenya. In the year 2019 only 6,199 applicants expressed interest in getting a TVET loan from the Higher Education Loans Board (HELB). The uptake of this allocation is very low, only 10% is allocated each year meaning that a whopping kshs 270 million remains unused (Ainea, 2019). Graduates from high school prefer to join the informal sector to gain skills through apprenticeship, it is estimated that 90% do not proceed to university nor join TVET institutions but join the informal sector directly.

#### **2.4 Technical and Vocational Education and Training Authority (TVETA)**

Technical and Vocational Education and Training Authority (TVETA) has developed Prior Learning Assessment and Recognition (PLAR) standards and guidelines. These guidelines will now allow individuals, especially the uncertified artisans in the *Jua Kali* sector to gain recognition of their prior learning skills and experience. Most of the artisans in the informal sector have acquired and perfected various skills through apprenticeship and ‘learning on the job’ without pursuing any formal training in a learning institution. This means that they do not have certificates that can enable them to seek employment in the formal sector or even register companies. However, now with the development of PLAR standards and guidelines, the skilled labour in the informal sector will be brought into the mainstream labour market (Republic of Kenya, 2020).

## 2.5 Adaptation of TVET in Changing Times

UNESCO (2002) refers to TVET as those aspects of the training in addition to general education that involve the study of technologies and related sciences to acquire practical skills, attitudes understating, and knowledge related to various occupations in the economic and social life. Way back in 2013, the ILO, UNESCO, the European Union, and the African Union policymakers recommended that all countries should establish RPL (ILO, 2015). Studies from many developing countries with a high school dropout rate, have shown that majority of young people, acquire workplace skills by informal means rather than through formal means. It is reported that, the gross enrolment ratio for upper secondary education in low-income countries is 29 per cent, of which only five per cent represent technical and vocational education (ILO, 2015).

The sweeping social changes taking place across the world caused by unprecedented economic and social changes and the glowing influence of the effects of globalization is creating a new picture of the current and future world. There is a demand for a shift from quantifying economic returns as a criterion for success to emphasis on securing productive decent work for all (OED, 2016). Since the last decade of the 20<sup>th</sup> Century, there has been numerous and diversified initiatives to develop education in almost all countries. Most countries have come up with rigorous reforms and major developments at all levels of education (ILO, 2013). The United Nations has adopted several global education initiatives to help develop societies and economies, among the initiatives is the Education For All (EFA), sustainable development goals (SGDs) and the Education for Sustainable Development (ESD). The UN has contributed to the development of Private-Public Partnerships (PPP) and the Life-Long Career Guidance for all (LLCG). There are two main forms of education that have a particular role to play in this context: Technical Vocational Education and Training (TVET) and Entrepreneurship Education (EPE) (UN, 2020).

## 2.6 Skills in the Informal Sector

Skills can be acquired through different pathways depending on the level of education, vocational training or apprenticeship. The global human capital landscape is becoming more complex and evolving more rapidly, partly because of the new wave of technological innovations and the uncertainty surrounding the transition from education to employment (World Economic Forum, 2016). Skills training is a necessary requirement for globalization and for the technological change needed to enhance technical training to keep step with the course of demands for highly skilled people (European Commission, 2017). Skills are malleable; they can be developed through practice and reinforced through daily experiences, it is possible to change to other skills or acquire others over the course of a lifetime (OECD, 2016).

The fourth industrial revolution is sweeping the world and we are on the verge of the 5<sup>th</sup> industrial revolution. Reports show a mismatch between skills sought by employers and those the youth have even though there is an increased access to education (World Bank, 2016). Young people are disadvantaged for they are not being equipped with skills relevant to the private sector nor entrepreneurial skills. The modern age jobs require complex problem solving as core skill by global trends. It is estimated that beyond the year 2020 about 40% of the world economy will be supported by digital platforms (AfB, 2018).

To unlock the potential of the informal apprenticeships, there is need to update the master trainer's skills to be able to improve their training. Master trainers lack information, capacity and incentives that are necessary to adapt to new workplace practices. This leads to apprentices learning obsolete workplace practices. There is need to recognise informal apprenticeships by the formal training systems. Due to lack of recognition, informal apprenticeships offer limited labour market mobility. This challenge can be solved by integrating informal apprenticeships into formal training system by allowing for the re-engagement of skills with further education and training (World Bank, 2020).

The informal sector in Kenya employs approximately 80% of the total workforce, 60% are youth between the age of 18 and 35 years. Of this, 50% are women (Republic of Kenya, 2017; Murunga et al, 2021). The formal sector cannot absorb the increasing number of job seekers. Therefore, it has emerged as an alternative source of employment to the increasing number of young people moving from educational institutions. The total workforce is estimated to be 14.9 million workers of the working population (Mercy Corps, 2019). One of the main activities taking place in the informal sector in Kenya is skills training. The informal sector expanded by 6% creating 14.5 million jobs in 2020 down from 13.3 million jobs in 2013. Almost two thirds of these jobs were created in the rural areas (KNBS, 2018). Many basic education graduates and dropouts enter jobs that have very little prospects. If training is offered, at an affordable and effective rate it can offer away out (World Bank, 2020).

### 3. Data Analysis

Besides technical skills, artisans need a variety of interpersonal skills among them people, communication, and conceptual skills. There is need to unlock the potential of the informal apprenticeships which is more urgent now than ever before. One of the main objectives of the research was to establish the business management skills of carpenters, plumbers, mechanics, welders, painters, and electricians by interviewing to establish their business management skills. The aim was to establish whether the artisans had business plans, kept business records, had KRA pins, gave branded receipts to their customers, branded their businesses, and had bank accounts for their businesses. A total of 481 artisans were interviewed for the research using an interview schedule.

From the Kenya Labour Market Information System (klmis) survey of 2019, it was noted that 53% of those engaged in the informal sector are men while 47% are women. The men work in trade, repairs, and manufacturing while women are mainly in the provision of food services and salons. The most preferred skills by employers in order of preference were financial skills, record keeping, marketing skills, managerial skills, Technical (job specific skills, customer care, ICT skills, Communication skills and life skills. The data captured covers all the ten ranked skills.

Table 1. Skills Most Preferred by Employers in the Informal Sector

Rank	Skill
1	Financial skills
2	Record keeping
3	Marketing skills
4	Managerial skills
5	Technical (job specific) skills
6	Customer care

7	ICT skills
8	Communication skills
9	Life skills

Adapted from the Labour Demand/Informal Sector Skills and Occupations Survey (2019) by the Kenya labour information system survey (klmis).

Table 1. Skills preferred by employers in the informal sector in order of preference.

Data from the research was analysed based on the means through which the artisans gained their skills and is summarised in table 3.2 below.

Table 2. How the *Jua Kali* Artisans Gained Their Skills

Means through which artisans gained their skills	Not certified for their skills	Certified for their skills
Through apprenticeship	415	0
By attending TVET Institution	61	61
Trained by former employer	5	0

Source: data obtained from administration of research instrument (Nov 2020-April 2021).

Table 2. Means through which the artisans gained their skills and certification for the skills.

The artisans who acquired their skills by attending TVET institutions are certified for their skills whereas those who gained their skills informally are not certified for the skills they have. Attending a technical institution is synonymous with gaining skills and getting certified for the skills. Gaining skills in the informal sector through apprenticeship is synonymous with gaining skills with no certification.

Table 3. Summary of Business Management Skills by Artisans

Manifestation of Business management skills by artisans	Gained their skills in a TVET institution		Gained skills in the informal sector through apprenticeship	
	Frequency	%	Frequency	%
Have business plans	2	4.2	0	0.0
Keep business records	1	2.1	1	2.1
Have KRA pin for business	3	6	1	2.1
Give branded receipts	3	6	2	4.2
Have bank a/c for business	3	6	1	2.1
Business is branded	3	6	3	6

Source: data obtained from administration of research instrument (Nov 2020-April 2021).

Table 3. Data in frequencies and percentages on the *Jua Kali* artisan's business management skills.

#### 4. Comparison Between Artisans Who Gained Skills Formally and Those Who Gained Them Informally

A Comparison was made between *Jua Kali* artisans who gained their skills by attending a TVET institution and those who acquired their skills through apprenticeship to establish which group is better than the other in business management skills. Data obtained is summarised in table 3.4 below.

Table 4. Summary of Artisans Who Own Businesses, Work as Casuals and Those Who Are Trainers.

	No. of artisans
Artisans under training	112
Artisans working as casuals	77
Artisans who own businesses	251
Artisans who were trainers	128

Source: data obtained from administration of research instrument (Nov 2020 to April 2021)  
Table 4. Artisan's engagement in the informal sector as business owners, trainers, and casuals.

Out of 251 artisans who owned businesses, only 48 had gained their skills by attending a TVET institution. Through random sampling, 48 other artisans were selected from those who gained their skills through apprenticeship. Using a hypothesis testing using a Z- statistic, a test was carried out to determine who between the two sets of artisans was better in business management practices.

**H<sub>0</sub>**, there is no significant difference in percentages in business management practices between artisans who gained their skills through apprenticeship and those who gained their skills by attending a TVET institution., i.e.

$$p_1 = p_2$$

**H<sub>1</sub>**, there is a significant difference in percentages business management practices between artisans who gained their skills through apprenticeship and those artisans who gained their skills by attending a TVET institution., i.e.

$$p_1 = \frac{4.2 + 2.1 + 6 + 6 + 6 + 6}{6} = 5.05\%$$

$$p_2 = \frac{0.0 + 2.1 + 2.1 + 4.2 + 2.1 + 6}{6} = 2.75\%$$

Using the Z statistic for difference in proportions,

$$Z = \frac{p_1 - p_2}{\sqrt{p_c(1 - p_c)\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

Where.

$$p_c = \frac{p_1 + p_2}{n_1 + n_2}$$

$$p_c = \frac{5.05 + 2.75}{6 + 6} = 0.19$$

$$Z_c = \frac{5.05 - 2.75}{\sqrt{0.19(1 - 0.19)\left(\frac{1}{6} + \frac{1}{6}\right)}} = \frac{2.3}{\sqrt{0.19 \times 0.81 \times 0.33}} = 10$$

At 1% level of significance the tabulated Z value Z<sub>T</sub> is 2.58

There is no significant difference between the null hypothesis and the alternative hypothesis. There is no significant difference between the *Jua Kali* artisans who gained their skills by attending a TVET institution and those who gained their skills through apprenticeship. The means through which the artisans gained their skills does not influence their business management practices.

#### **4.1 Summary of the Findings**

The research found out that those artisans who spent more time in the informal sector were well established than those who had spent a short time. There is a vibrant skills training scheme in the informal sector through the apprenticeship programme. The entry path for most artisans is through apprenticeship to gain skills, working as casual to gain some income to buy business implements for the business and starting one's own business. This process takes an average of five years.

There are more artisans (86.28%) who gained their skills through apprenticeship. Only 12.68% of the artisans gained their skills by attending a TVET institution and 1.04% were trained by their former employers in the formal sector. Most artisans preferred training by apprenticeship than by attending a TVET institution because it was more practical as compared to the theoretical approach used by TVET institutions. The mode of payment is friendly as the owners of business enterprises allow the new apprentices to pay in instalments or do work equivalent to a certain amount of money.

#### **Conclusion**

In response to skill training concerns, education policy makers and individual TVET institutions should acknowledge the growing trend where most of those who join the informal sector prefer to gain their skills through apprenticeship than attend a TVET institution. The old method of relying on TVET institutions as a measure of imparting relevant skills and certification of those who gain these skills is no longer sufficient. A competency framework is necessary, whereby there is emphasis on certification of the large number of artisans who are not certified for their skills in the informal sector. The important thing should not be where or how an artisan gained his skills but rather his competence to perform certain specific tasks. Sensitisation and mounting reskill trainings should draw artisans to upgrade their skills and learn entrepreneurial and IT skills which most lack because they are neither emphasized in TVET institutions nor in the informal sector apprenticeships. If prior knowledge is inaccurate, instructors should be retrained especially those already training through apprenticeship to improve both their technical and pedagogical skills. Recognition of prior knowledge is noble, but its implementation is the problem.

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## *Secondary ESL Teachers' Beliefs, Strategies, and Experiences in Teaching Vocabulary*

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### **Abstract**

The importance of vocabulary in language learning cannot be ignored, due to the significance that it brings into the core foundation of second or foreign language learning. Due to the declining and poor performance of learners in language subjects in recent international and national standardized examinations, this study explored the beliefs, strategies, and experiences of secondary ESL teachers in the Philippines in teaching vocabulary. This descriptive single case study included 17 secondary ESL teachers as participants and were asked to answer an open-ended online questionnaire seeking to describe their beliefs, strategies, and experiences in teaching vocabulary. For the purposes of confirmation and verification of participants' responses, semi-structured interviews through online conferencing platforms were also conducted. Anchored on the framework of Borg (2003), the participants' beliefs mirror the strategies and experiences they were accustomed to in teaching and learning vocabulary while incorporating 21st century approaches such as collaboration and autonomy-supportive language learning strategies.

Keywords: Vocabulary, Teaching and Learning Vocabulary, Teacher Cognition, ESL

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## Introduction

Vocabulary is an important feature of language learning. It is considered as eternally fundamental in the acquisition of any language because it serves as a significant factor in developing language skills such as speaking and reading (Ying, Komachali & Khodareza, as cited in Choo, 2017; Laufer, as cited in Min, 2008; Yuditseva, 2015). In practice, learners undergo various levels of vocabulary development from the simplest to the most complex. As they mature, they encounter resources that aim to further enhance comprehension skills; on one hand, others rely on the use of vocabulary-decoding resources.

To achieve this aim, English as a Second Language (ESL) teachers are expected to be knowledgeable in content, instruction, and theory. With a wide set of vocabulary, it would be remarkable to use reading materials to introduce vocabulary and strategize its delivery for retention; however, activities or processes aiming to do so beyond the reading selections are quite non-evident. In some cases, students are perceived to lack vocabulary despite the expectations set existing policies, especially in the higher levels. Likewise, despite having ample resources and being taught of strategies to learn vocabulary, students tend to become discouraged, hence, citing a potential problem in the processes that mediate the development of vocabulary (Iqbal & Komal, 2017), and tolerating in this capacity puts them at risk of experiencing difficulties in performing essential language skills.

Developing vocabulary is undoubtedly one of the very essential competencies language learners must have. Recently, there is small success in exams assessing vocabulary proficiency; for instance, the Philippines' National Achievement Test (NAT) and the poor performance in the reading comprehension of the 2018 Programme for International Student Assessment (PISA) show that students are yet to be equipped in undertaking more complex language learning tasks in higher levels. Also, there may be rising problems in mediators in need for review. As an initial aid to a complex problem, this study described the beliefs, strategies, and experiences of secondary ESL teachers in teaching vocabulary.

## Research Questions

Specifically, this study aimed to answer the following questions:

1. What are the beliefs evident among ESL teachers towards teaching vocabulary?
2. What are the issues that ESL teachers experience in teaching vocabulary?
3. What challenges do ESL teachers encounter in terms of:
  - a. the students' interest in literary selections?
  - b. the students' attitudes towards literature-based language learning tasks?
4. What methods in teaching vocabulary do ESL teachers find effective in the language classroom?

## The Importance of Vocabulary

Vocabulary is a chief element in language learning due to the fascination of how syntax is constructed (Choo, 2017; Oxford, 2013), which shows how students can develop their early communication skills, aside from grammar and pronunciation. Fahrurrozi (2017) and Hidayat (2016) each elaborated the vocabulary advantage of L1 speakers of English compared to those whose L2 or L3 is English. Further, vocabulary is attributed to academic achievement due to the dependency of essential language macro skills to the vocabulary foundation of a student – for example, understanding the complexities of science-related fields (İlter, 2019;

Lund & Johnson, 2013; Oxford, 2013; Pittman et al., 2018). Additionally, it is parallel to high literacy rates. Perhaps, one of the most notable and ironic was the Philippines' 2018 PISA results, ranking the country last in reading comprehension despite being recognized as a "highly literate" country by UNESCO (Manlapig, 2020; Organisation for Economic Cooperation and Development, 2018; San Juan, 2019). Hence, vocabulary is fundamental across disciplines, citing the need to comprehend the complexities of each.

### Teachers' Beliefs in Teaching Vocabulary

Defined as a state of mind people hold as true despite of many truths exposed, beliefs are subjective to evaluation and judgment of an individual (Borg, 2001; Pajares, 1992). Figure 1 further explains that teachers' beliefs are shaped through their previous experience in instruction as students (Amiryousefi, 2015; Boston University School of Public Health, 2019), therefore, mirrors their practice in the language classroom. To illustrate, if a teacher learned vocabulary through extensive reading, then s/he may implement the same strategy to students because its effectivity is accepted through the teacher's belief. Moreover, teachers' practice and cognition continue to be mutually beneficial through factors like schooling, actual classroom experience, and various contextual factors.

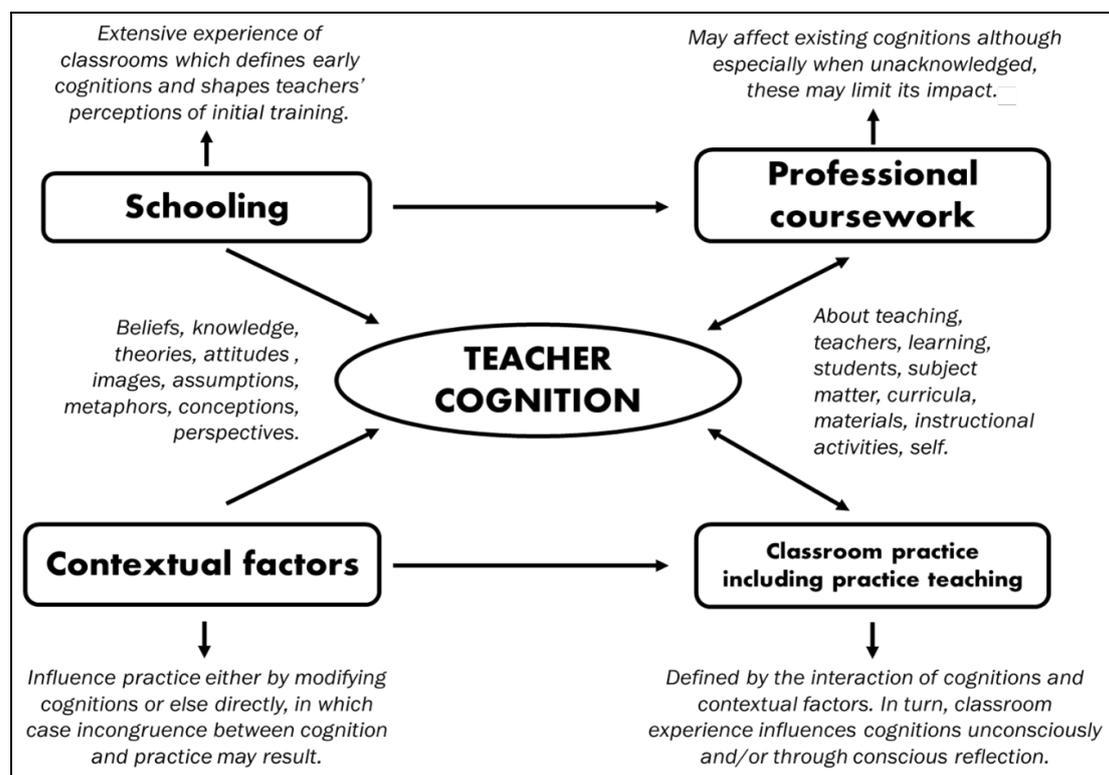


Figure 1: Schematic Conceptualization of Teaching (Borg, 2003)

Although vocabulary is considered by teachers as essential in attaining linguistic competence, it is still overshadowed by grammar as the need for students to express certain words and expressions appropriately is highlighted (Fan, et al, as cited in Gao & Ma, 2011). Moreover, Chung (2018) and Mardali & Siyyari (2019) claim that little regard is given to vocabulary in the language curriculum despite its essence and the same as their beliefs in vocabulary as not parallel with their practices. This neglect is argued by Riley, as cited in Amiryousefi (2015) explaining when teachers and students possess the same beliefs in teaching and learning vocabulary, it would eliminate misunderstanding and dissatisfaction, even, promoting a

learner-centered experience. Since most learning environments nowadays are learner-centered, teachers facilitating vocabulary learning is much expected than providing a list of what to learn. Eventually, students who are accountable to this experience are most likely to become self-regulated learners who learn vocabulary on their own.

### Literature as a Gauge in Learning Vocabulary

The role of literature both as an authentic material (Hişmanoğlu, 2005; Mart, 2016; Puspitasari, 2016; Violetta-Irene, 2015) and its connection to cultural (Wales, as cited in Mart, 2016) and linguistic competence have been long-established. Dole, et al. (1995), supported by Horst (2005), Iqbal & Komal (2017), and Puspitasari (2016), claims that a student who has extensive vocabulary can better understand new vocabularies in different contexts while comprehending the text simultaneously. Also, it reduces students' dependency in other references to decode meanings and increases interest with literature as a gauge (Kooy & Chiu, 1998; Min, 2008; Violetta-Irene, 2015). With interest as a dependent variable in learning vocabulary through literatures, teachers should also consider the difficulty level of materials being given to students as anxiety and fear due to difficulty may arise and the concept of modelling to students in boosting reading interest (Baker & Scher, as cited in Estacio, 2012). Making use of these opportunities are in the hands of both the teacher and student. Although motivation may decline at some point, a collaborative effort is pointed as important as the role of vocabulary in language learning.

### Methods

Name	Age	Highest degree attained	Teaching experience
T-1	23	Bachelor's degree	1-5 years
T-2	26	Bachelor's degree	1-5 years
T-3	25	Master's degree	1-5 years
T-4	25	Bachelor's degree	1-5 years
T-5	21	Bachelor's degree	1-5 years
T-6	32	Bachelor's degree	11-15 years
T-7	23	Bachelor's degree	1-5 years
T-8	33	Bachelor's degree	11-15 years
T-9	25	Bachelor's degree	1-5 years
T-10	31	Bachelor's degree	6-10 years
T-11	27	Bachelor's degree	1-5 years
T-12	26	Bachelor's degree	1-5 years
T-13	30	Master's degree	6-10 years
T-14	52	Master's degree	More than 25 years
T-15	25	Bachelor's degree	1-5 years
T-16	40	Doctorate degree	11-15 years
T-17	24	Bachelor's degree	1-5 years

Table 1: Respondents' Profile

A descriptive single-case study design was used to describe natural phenomenon, i.e. beliefs, strategies, and experiences of ESL teachers in teaching vocabulary within the context of Philippine secondary ESL classrooms (Zainal, 2007). 17 respondents, teaching in secondary ESL settings in public and private high schools, were selected using convenience sampling

(Creswell, 2012) to take part in the study. Table 1 shows the profile of each respondent, while Tables 2 and 3 show a diversity of degrees obtained and experiences in teaching ESL.

<b>Degree</b>	<b>%</b>
Bachelor's degree	76.5%
Master's degree	17.6%
Doctorate degree	5.9%

Table 2: Percentage distribution of obtained degrees

<b>Level</b>	<b>N</b>	<b>%</b>
Grade 7	11	64.7%
Grade 8	14	82.4%
Grade 9	8	47.1%
Grade 10	10	58.8%

Table 2: Levels Handled in Teaching ESL

An instrument consisting of four parts, inquiring namely: general information, beliefs (Gao & Ma, 2011), issues and challenges incorporating literature, and methods in teaching vocabulary were given to the participants. Prior to the collection of data, a letter that guaranteed protection of information and responses in the questionnaire, through Republic Act 10173 otherwise known as the Data Privacy Act of 2012, was shown to the participants. Moreover, the instrument was validated by experts in English Language Education and Applied Linguistics.

The participants were given a link to the questionnaire via Google Forms and were asked to read the initial letter first. In case they have decided to withdraw, they were free to do so. Once they fully answered, each individual was given a code to anonymize responses to ensure confidentiality. In case a clarification on responses was needed, a semi-structured interview was scheduled via online conferencing platform of the participant's preference.

## Results

Both data from the questionnaire and semi-structured interviews were coded using Microsoft Excel 365 into different categories and later recoded to see emerging themes. Patterns were analyzed and categorized using thematic analysis.

### The Importance of Vocabulary

The participants agree unanimously that vocabulary learning is fundamental, as seen on the responses of T-10 and T-16. Besides comprehension and communication skills, it provides students the access to critical and logical thinking through their thoughts due to their vocabulary knowledge, whether oral or written.

- *I would definitely say that it is fundamental to have strong vocabulary. It's the basic requirement for learning and understanding the content of other subjects. (T-10)*
- *Vocabulary is the foundation for comprehension. Without enough understanding of words/terms, learners cannot comprehend other or totally cannot express their own ideas. It also helps the learners' ability to think logically. (T-16)*

Moreover, according to participants T-3 and T-10, factors such as students' initiative, motivation, vocabulary proficiency, and purpose on where to use it are also considered in teaching and learning vocabulary in the ESL classroom.

- *we should allow our students to look for some words on the given text that they are unfamiliar with aside from the words given to them prior to the discussion. (T-3)*
- *I also find it best when vocabulary is learned through reading. Students should develop a routine to find the meaning of a difficult word whenever it is encountered in reading. (T-10)*

As previously mentioned in the studies of İltter (2019), Lund & Johnson (2013), Oxford, (2013), and Pittman, et al. (2018), it can be supported that vocabulary is indeed important to learn, most especially in other contexts. This is attested by the response of T-10.

- *It's the basic requirement for learning and understanding the content of other subjects. (T-10)*

### Learning Vocabulary Through Reading

Participants' foundation proved to be a crucial point of how they teach and learn in the classroom. Their exposure to reading materials were quite significant, as expressed in prior studies (Horst, 2005; Iqbal & Komal, 2017; Kooy & Chiu, 1998; Mart, 2016). Most of them had experiences in reading books, newspapers, journal articles, and the interest in reading literary pieces presented in the class. For example, the implementation of a summer reading activity for T-1 paved way for understanding vocabularies and further polishing of linguistic skills. T-7 and T-15 on one hand cited watching films, television shows, listening to conversations in the target language were main contributors in honing their language skills. Hence, citing extensive reading, or at least reading in general to be an important element in learning vocabulary.

### Vocabulary Teaching and Learning Strategies

Vocabulary teaching and learning strategies may be passed or taught from one generation of learners to another (Borg, 2003; Oxford, 2013). Table 3 shows that majority of the participants continue to use the same methods they were exposed with during their foundation years (e.g. context clues), while a few have declared they no longer use such or have their own effective approach.

Response	N	%
Yes	15	88.2%
No	2	11.8%

Table 3: Utilization of Strategies/Approaches During Foundation Years

The responses of T-3 and T-11 validate the area of schooling in the framework of Borg (2003). Although two of the 17 participants mentioned that they no longer use the strategies they were accustomed to as students, it still validates the other three areas of the framework, respectively. Hence, it may be theorized that some strategies may not be applicable to the present context or perhaps utilizing a better strategy upon reflection during classroom immersion.

- *The common technique my former teachers used was through the use of context clues. They allow us to get the meaning first before giving the correct definition. (T-3)*
- *...or the common ones wherein there is this sample sentence using the difficult word and we would tell what that word means by its use. (T-11)*

### **Students' Vocabulary Proficiency and Motivation**

Responses revealed an observation of diversity in the vocabulary proficiency of students and a present gap between the students' proficiency and content level. Further, struggles of school systems in implementing policies to address these gaps may have contributed to the decline of performance in the PISA 2018 and in national standardized examinations. Overall, the participants claim that their learners have a weak vocabulary proficiency.

- *Gap in content level and learners' vocabulary proficiency (T-13)*
- *It could have contributed to the PISA results. Also, the policies are vague or unclear and not implemented properly. (T-4; based on interview response)*

Claims of Iqbal & Komal (2017) on lack of motivation in learning vocabulary are supported by T-9 and T-10. Although negative perception caused by the difficulties and challenges among students in learning vocabulary may arise, manifestations of positive attitudes and executing innovative strategies in learning vocabulary, as remedy (İlter, 2019), can help to counter amotivation and short-term retention. These remedies may be done through collaboration of learners, provision of scaffolding or remediation activities, and immersion in reading activities.

- *Whenever I provide reading materials, I see to it that I observe students while they read...sometimes, I bring my own reading materials, like a newspaper...; at some point, I think it's better for them to see their teacher read with them and it enables them to read. (T-10; based on interview response)*

### **Lack of Teaching Resources**

In the Philippines, lack of teaching resources is a common problem across various setups. Any lack thereof may be attributed to factors like class ratio, funding, and maintenance. Others may have other purposes for teaching vocabulary; for instance, improving speaking and reading through speech laboratories or using reading kits, respectively. Overall, resources that are readily available are maximized without compromise on student motivation.

- *When it comes to teaching resources, I use whatever materials that is available and when it comes to vocabulary proficiency, I ask them to do drills and activities that will increase the level of their proficiency. (T-7)*

Additionally, there is improvement in developing the affective domain. Expressing oneself better in the target language and possessing the confidence in asking peers when experiencing difficulty in vocabulary learning are evident, which is attributed to collaboration by T-3.

- *Some students who are experiencing difficulty in terms of understanding the idea of the words do not hesitate to ask from their partners the meaning of it. Also, they show eagerness to finish the reading task together with explaining the words that are new to them. (T-3)*

## The Appeal of Reading Materials To Learners

Reading is not highly appealing to learners. Responses include students tendencies to view reading or literary materials as boring, a tiring task, and a requirement as mentioned by T-1 and T-5. These reasons are unacceptable especially if the target is to provide long-lasting learning; even so, this is an alarming challenge experienced by ESL teachers.

- *It's only interesting if you make it interesting. (T-1)*
- *Some students see it as a requirement (T-5)*

On one hand, motivation may still be present if an understandable background and acceptable characteristic, i.e. contemporary features or genres, are present, most especially if the reading materials are of classical origin.

- *Most of the times, they enjoy topics related to Greek myth. But they don't enjoy topics like Shakespearean poetry and the like. (T-9)*
- *Students are not usually interested in literature; however, when you start giving the background, giving an idea of what the literature might be, they will start to get curious and interested. (T-13)*

## Using Reading Materials in Teaching Vocabulary

Extent of interest	N	%
Very interested	4	24%
Somewhat interested	13	76%
Not very interested	-	-
Not at all interested	-	-

Table 4: Extent of Students' Interest in Reading/Literature-Based Tasks

By analyzing the mentioned practices, students might be eyeing on an approach that makes the tasks easier than they are normally; with these strategies, it is a possibility that they can foster more interaction, collaboration, and by carefully selecting contemporary and relatable literary pieces that share the same intended concept to be taught. Hence, they become more participative.

- *I let them work in pairs so as to alleviate the tediousness in reading long passages. (T-12)*
- *Present 21st century literary pieces which are relatable to the learners, making sure it share the same concept and value with the classic ones; classic literary pieces shall also be discussed upon intensifying the learners' interest. (T-17)*

## Methods in Teaching Vocabulary

According to most teachers, they still utilize methods of their former teachers. This is because they see it effective. Methods such as context clues, gamification, dictionary use, visuals, and vocabulary notebooks remain effective, but tailor-fit them to the current context into a more hybrid version, particularly including collaboration and independent learning. Combining these classical and contemporary methods have made their approach unique to what teachers are accustomed to during their years as students. Further, it is accepted that vocabulary must be learned in order to develop communicative skills.

- *Excellent test scores, deep understanding of the text, and they became talkative during English time using the language. (T-11)*
- *The healthy noise that they create whenever they participate in the activities and their high and passing scores after short quizzes. (T-7)*

Learner autonomy is observed in the process through the use of autonomy-monitoring materials (e.g. individual progress chart), however, some teachers miss out the opportunity to observe it.

- *By having their individual progress chart. The students will write how they progress and how whose words allow them to communicate with other people. They also note what are the words that are not useful for them in communicating with other people. (T-3)*
- *Journals... They can easily share what they have learned and things that they may find difficult and how they can improve their skills. (T-13)*
- *I honestly do not get to observe them in that aspect. But since we have SRA [reading tool], I'm able to see how they monitor themselves through the progress charts in their answer booklets. (T-10)*
- *I am not sure to be honest maybe their scores in the short vocabulary quiz. (T-7)*

One of the features of autonomous learning is the constant self-monitoring of learners, and teachers should keep themselves aware of how this happens in the classroom, so as to practice them in their own ways. Moreover, it has since become a significant skill that students need to learn for themselves in the 21st century (Delos Reyes & Torio, 2020). If teachers are not kept aware of this, then the general process of vocabulary learning itself will become risky.

## **Discussion**

The research questions posed in beforehand are to be answered on this section.

First, supported by the framework of Borg (2003), ESL teachers rely heavily on their experiences as learners. They adopted the same strategies they were accustomed to during their foundation years, but they adapt to contemporary approaches such as the incorporation of collaborative learning and autonomous learning, where challenges are eased, and students get the opportunities to be taught of how these strategies used. Thus, validating Oxford's (2013) claim that vocabulary learning strategies are teachable.

Second, the issues of ESL teachers in teaching vocabulary refer to learners' proficiency, motivation, and the lack of teaching resources. According to the participants' observations, learners tend to have weak vocabulary proficiency perhaps due to difficulties and challenges they experienced, which greatly affects motivation, and could lead to poor performance in examinations. As a solution to these issues, ESL teachers maximize collaboration in their practice to ease the difficulties and provide remediation to struggling learners; while sometimes, when incorporating the use of reading materials, immersion in the activity with the learners.

Third, students treat reading or literary selections as mere requirements and a tiring task. These students prefer to have backgrounds of reading materials be known and/or possess 21st century literary characteristics, rather than the complexities of Shakespeare and his contemporaries. Thus, it is essential to select reading materials that can pass on at least either

both or one of these criteria. On one hand, learners prefer to be engaged and collaborative. If the tasks are done easily as a collaborative unit, the more they work and become motivated in the task, without compromising the learning targets. Sharing open knowledge is favorable to them; they learn on their own and the teacher facilitates in maintaining the academic noise of the learners throughout the process. Therefore, aside from the knowledge given by the teacher, the learners are given an opportunity to express themselves in the learning process.

Finally, ESL teachers find their strategies effective when touched with 21st century approaches. For instance, T-3 has provided a sense of collaborative learning in his classes more often than others. He knows the needs and the likes of the learners, so he sees favorable results in the students' learning, such as the increase in vocabulary proficiency and self-confidence in communicating with peers during the learning process. Similarly, most of the participants have initiated the use of portfolios, journals, progress charts, and notebooks among their learners to monitor their own progress in vocabulary learning, for which the students are becoming accustomed to. Hence, certifying their students as autonomous, based on the definition by Little (1995, 2007).

## **Conclusion**

Borg (2003), as indicated in the existing framework, explains that teacher cognition is in direct effect with teacher practice. Clearly, it is affirmative and evident in the strategies and experiences of secondary ESL teachers, most especially the element of collaborative learning which further leads to the development of autonomy among the participants' learners. Although the teachers were confident in the strategies and approaches they use in the classroom as effective, the integration of the development of 21st century learner skills was still evident, which is an excellent way of showing how a traditional approach or strategy, based on their beliefs, can be brought up or upgraded in the course of time. With these findings, ESL teachers' beliefs, strategies, and experiences are already influenced by all areas of the adopted framework, as these beliefs are shown through their foundation while schooling, while it may have been challenged during the time they allot in professional coursework and modified and reflected due to potential misfitting of practice in their respective contexts, whether pre-service or in-service.

It is recommended, however, that teachers be more aware of how their learners are able to manage their learning and how effective the strategies they come up with are. Further, despite the years of experience of teachers in ESL practice, there has been no significant change in the practice among those who have spent 1-5 years in teaching than those who have already taught for 11-15 years; nevertheless, those who have been able to earn a higher degree, i.e. master's degree, doctorate degree, have made more observations and applied more strategies in their classes than the rest. It may be due to the vast experience both as ESL teacher and teacher-learner. Therefore, increase in professional advancement or growth should be taken into consideration in order to keep pace with what the students need. Likewise, the possibility of tailor-fitting ESL teacher-training curricula in higher education institutions is recommended, in order to fit in 21st century learners' needs and expectations.

In terms of pedagogical implications, ESL teachers should utilize and maximize autonomy-supportive approaches in teaching vocabulary. Through this, students will be given the opportunities in learning vocabulary on their own, as well as setting and tracking their own progress. Furthermore, this will also potentially address the lack of teaching materials since the students themselves are allowed to find their own methodologies in learning vocabulary

at their own preferences. Additionally, teachers should present reading materials, especially canonical ones, in the most modern way possible.

It is essential that the evolution of ESL teachers' teaching methodologies is acknowledged through further refinement. Replacing former strategies should not be confused with refining or updating such approaches, since these methods are time-tested and are universal. As Oxford (2013) claimed that vocabulary learning strategies are teachable, then it should also be learnable – once learnable, it can be manipulated according to the learners' will.

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***Perceived Tasks of Quality Assurance and Its Impact on the Teaching-Learning Process among Deans and Faculty***

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**Abstract**

Quality assurance systems of schools are put in place to ensure that optimum education are provided by institutions responsible for such endeavors. The study looked into the perceptions of deans and faculty on the task of the quality assurance system and its impact on the teaching-learning process of a University in Northern Philippines. The researchers made use of the descriptive design with the use of an adopted questionnaire modified for the purpose of the study. There were 62 faculty and 7 deans who participated in the study. Pearson R and independent sample t-test showed that the tasks of the quality assurance system is significantly related to the perceived impact on the teaching and learning process. There is no significant difference in the perception of the deans and faculty on the tasks of the quality assurance system of the University and its impact on the teaching and learning process. Quality of teaching-learning process is greatly influenced by the strategies/tasks performed by the quality assurance system of the school. It is thus recommended that strengthening and empowering the teachers and deans to perform quality assurance activities to ensure provision of quality education – manifested in globally competitive graduates.

Keywords: Quality Assurance, Teaching-Learning Process, Quality Education

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## Introduction

Education is necessary for survival in the modern world, and it is not only education but also high-quality education that ensures the citizens of the world's maximum survival (Sharma, 2015). Quality education is not only the acquisition of knowledge, but also the training in how to apply that knowledge in any given situation, so that an individual can perform their best and harness their potential for their own benefit and the benefit of the society to which they belong (Eze, 2009; Slade, 2017; Tawil, Akkari & Macedo, 2012; UNESCO, 2003). To achieve high-quality education, a system of measuring the teaching-learning process must be holistic and affordable (Almadani, Reid, & Rodrigues, 2011). (Barrett, Chawla-Duggan, Lowe, Nickel & Ukpo, 2006). As the educational process's focal point, the teaching-learning process must be examined to develop quality assurance strategies that effectively enhance/improve the quality of education provided (European Commission, 2018).

The concept of quality education promoted by developed countries cannot be applied to developing and underdeveloped countries due to their socioeconomic status (Barret, Chawla, Lowe, Nickel & Ukpo, 2006). UNESCO recognized the importance of achieving a common standard of quality education among third world countries by establishing quality assurance systems to monitor all educational institutions worldwide (Slade, 2017; European Commission, 2018). Quality assurance is critical for enhancing and maintaining effective teaching and learning environments, particularly in higher education (Biggs, 2002; Council on Higher Education, 2012). Typically, quality assurance is measured in terms of the effectiveness of the teaching-learning process and, more concretely, the quality of graduates produced by the school (Basheka, Nkataand & Barifaijo, 2013; Blasko & Raschman, 2015). Teaching and learning processes are frequently the primary focus of most quality assurance systems, as indicated by higher education institutions' mission-vision statements.

Higher education institutions' quality assurance systems utilized internal and external mechanisms to promote the quality of teaching-learning processes that work in tandem to ensure sustained development and competitiveness. External quality assurance mechanisms include evaluations by international, national, or regional agencies to determine whether higher education institutions adhere to quality education standards/frameworks. Internal quality assurance mechanisms include self-assessments and staff/faculty appraisals (Elken & Stensaker, 2018; UNSW, 2017). These mechanisms are being implemented to deliver the best education possible – which is contingent on the quality of teaching and learning processes – which entails examining the relationships between administration and the people who operate within a set of established practices to accomplish the intended goal (Hwang & Colyvas, 2011; Lawrence, Suddaby & Leca, 2009).

In achieving quality, the teaching-learning process must be constantly reviewed to ensure that the techniques and strategies used are consistent with the institution's mission and vision (Netshifhefhe, Nobongoza & Maphosa, 2016). Teachers must be given the opportunity to self-assess, peer-assess, and evaluate administrators' strategies during the review and evaluation of the teaching-learning process to create a feedback loop that will enhance and improve the institution's instructional areas (Barrett, Chawla-Duggan, Lowe, Nickel & Ukpo, 2006; Chong & Ho, 2006; Saeed, 2018).

In the Philippines, the Higher Education Act of 1994 (Republic Act No. 7722) demonstrates the country's desire to improve the country's educational quality by establishing the Commission on Higher Education to oversee and set up minimum standards for degree

programs and educational institutions (CHED, 2012). The commission is responsible for monitoring and evaluating the quality assurance systems in place at all higher educational institutions in the Philippines (CHED Memo no. 15, 2005). The Commission of Higher Education's role in promoting and maintaining quality education through quality assurance, particularly in the teaching and learning process, is very evident (Ruiz & Junio-Sabio, 2012), as evidenced by more stringent regulations for university autonomy, particularly in four (4) key areas: governance and management, quality teaching and research, and student support and communication (CHED Annual Report, 2009). According to Segismundo (2017), an essential tool for achieving quality education, particularly in the teaching-learning area, is accreditation.

The University of La Salette, Inc.'s quality assurance system is housed in the Office of the Quality Enhancement Cell, which reports to the Vice-President for Academics. It is a newly established office as mandated by University typology. It is not older than five (5) years. Its duties and responsibilities are geared toward promoting, maintaining, and enhancing the institution's quality assurance mechanisms. The roles and functions of the University's quality assurance system are not well understood by the average faculty member. This situation may be caused by policies governing the quality assurance system that are communicated to the university's middle supervisors – deans and office heads. In this regard, the study seeks to ascertain how deans and faculty perceive the quality assurance system at the University of La Salette, Inc. and its effect on the teaching-learning process.

### **Conceptual Framework**

According to the Danielson Model of quality teaching, the teaching-learning system involves four dimensions: 1.) Planning and preparation (method of instruction); 2.) Classroom environment (environment in which learning occurs); 3.) Instruction (student participation and engagement); and 4.) Professional responsibilities (intention to improve or enhance capabilities) (Almadani, Reid & Rodrigues, 2011). Along these dimensions, the quality assurance manager, deans/administrators, and teachers must collaborate and gain insight into how each can contribute to achieving quality and identifying areas of the teaching-learning process that require attention (Danielson, 2007; Higuera, 2009).

The primary responsibility of an educational institution's quality assurance system is to ensure that the academic services provided by the school adhere to established standards, such as the ASEAN educational standards in Asia. Additionally, it is necessary to consider the difficulties and the impact of quality assurance strategies on the goals and objectives for them to be realistic and effective (Leiber, Stensaker & Harvey, 2015; Seyfried & Pohlenz, 2018). The quality assurance manager's role should be more consultative with teachers, deans, and administrators (Almadani, Reid & Rodrigues, 2011; Seyfried & Pohlenz, 2018).



assurance system that was established to assist them in performing their teaching and facilitating learning.

## Methodology

*Research Design.* The study used the descriptive correlational method to determine the respondents' perceptions on the tasks of the university's quality assurance system and the perceived effects of these tasks on their teaching-learning process. It aims to describe the perceived functions of the quality assurance system and the impact of these tasks in the teaching-learning

*Participants.* The faculty and deans were the study respondents because they are the ones responsible for the teaching-learning process. There were 77 faculty members and seven deans. Purposive sampling was done. Meanwhile, 15 faculty members were not able to participate due to various reasons that they could not attend the webinar.

Table 1. Profile of the Participants

		f	%
<b>Gender</b>	Male	28	40.6
	Female	39	56.5
<b>Age</b>	59-68 years old	7	10.4
	49-58 years old	21	31.3
	39-48 years old	14	20.9
	29-38 years old	10	14.9
	19-28 years old	22	32.8
<b>Department</b>	College of Teacher Education, Arts & sciences	19	28.4
	College of Business Education	10	14.9
	College of Engineering & Architecture	5	7.5
	College of Information Technology	5	7.5
	College of Medicine & Allied Medical Programs	13	19.4
	College of Accountancy	3	4.5
	College of Criminology	2	3.0
	College of Nursing, Public Health & Midwifery	6	9.0
	Department of Student Services	1	1.5
	Graduate School	1	1.5
	Library	2	3.0
<b>Educational Attainment</b>	Bachelor's Degree	26	37.7
	Master's Degree	31	44.9
	Doctoral	8	11.6
<b>Position</b>	Deans	7	10.1
	Faculty	62	89.9

*Data Collection and Procedure.* The survey questionnaire used by the researchers was a modification from the study of Saeed (2018). The instrument comprises ten (10) items, 4 for tasks and 6 for the impacts. The task variables were: provisions of trainings, support services, the conduct of academic audits, and encouragement of research. Furthermore, the impact variables were professional development and academic performance, evaluation and assessments, motivation of participation of institutional activities, curriculum implementation, and academic workload.

After securing approval from the School Administration, the questionnaire was administered during the webinar on research capabilities to ensure one hundred percent participation and retrieval. All faculty and deans were requested to participate in the study.

*Data Analysis.* The responses of the participants were analyzed using a four-point scale, with numerical and qualitative description:

Table 2 Four-Point Scale.

Scale	Numerical Range	Qualitative Description
4	3.25 – 4.00	Strongly agree
3	2.50 – 3.24	Agree
2	1.75 – 2.49	Disagree
1	1.00 – 1.74	Strongly

The answers were subjected to computations of mean and standard deviation. The Pearson's  $r$  was used for correlation and independent t-test and ANOVA was used to find the differences in the responses of the participants' perceptions.

## Results and Discussions

In view of the research questions, the following are the salient findings of the study:

Table 3. Frequency, Percentage, Mean and Standard Deviation of Responses of the Participants on the Perceived Tasks of the Quality Assurance System

<i>Items</i>	<i>4</i>	<i>3</i>	<i>2</i>	<i>1</i>	<i>M</i>	<i>SD</i>
1. The training provided has aided me in making my course syllabus and learning plans	25 (38.5)	29 (30.8)	8 (12.3)	3 (4.6)	3.22	0.84
2. QA/QES has supported the learning process through various support systems	19 (29.2)	31 (47.7)	10 (15.4)	3 (4.6)	3.05	0.81
3. QA/QES conducts regular academic audits to give recommendations and solutions to challenges I face in teaching	21 (32.3)	27 (41.5)	14 (21.2)	3 (4.6)	3.02	0.86
4. QA/QES has encouraged research and scientific productions	21 (32.3)	28 (43.1)	12 (18.5)	4 (6.2)	3.02	0.88
Overall Mean	3.08			Agree		

Note: percentages do not add up to 100% due to missing responses

The respondents agreed that the provisions of training to aid in the making of the course syllabus, provides a support system for the learning process, conducts regular academic audits and solutions and encourage research and scientific productions are tasks of the Quality Assurance System of the University. These tasks were part of the internal mechanisms of a higher education institution to determine the relationships between the administration and the people are mandated to function within a set of established practices to reach the intended goal (Hwang & Colyvas, 2011 Lawrence et al., 2009). These tasks of quality assurance system are required as part of the school's compliance to international, national, and regional standards/framework of quality education in congruence to the school's typology (Elken & Stensaker, 2018; UNSW, 2017)

Table 4. Frequency, Percentage, Mean and Standard Deviation of Responses of the Participants on the Perceived Impacts on the Teaching-Learning Process of the tasks of the Quality Assurance System

<i>Items</i>	<i>4</i>	<i>3</i>	<i>2</i>	<i>1</i>	<i>M</i>	<i>SD</i>
1. QA/QES helps me develop my professional and academic performance	29 (44.6)	24 (36.9)	10 (15.4)	1 (1.5)	3.27	0.78
2. QA/QES enables me to continuously develop my teaching skills through evaluation and periodic assessments	29 (44.6)	24 (36.9)	10 (15.4)	2 (3.1)	3.23	0.83
3. QA/QES has motivated me to actively participate in the University activities especially those that could improve my teaching abilities	28 (43.1)	23 (35.4)	11 (16.9)	2 (3.1)	3.20	0.84
4. QA/QES has been very helpful in my execution and implementation of the curriculum of my program/subjects	31 (47.7)	20 (30.8)	10 (15.4)	3 (4.6)	3.23	0.89
5. QA/QES has motivated me to make improvements of my learning assessment methods	32 (49.2)	23 (35.4)	7 (10.8)	3 (4.6)	3.29	0.84
6. QA/QES increases my academic workload	23 (35.4)	29 (44.6)	11 (16.9)	1 (1.5)	3.16	0.76
Overall Mean	3.23			Agree		

Note: percentages do not add up to 100% due to missing responses

The respondents agree that the Quality Assurance System's tasks affect professional and academic performance, the development of teaching skills through evaluation and periodic assessments, motivation to participate in activities aimed at improving teaching abilities, and assessing student learning and the execution and implementation of the program's curriculum.

The significance of quality assurance tasks can be quantified only when the effectiveness and efficiency of the teaching-learning process are tangibly demonstrated through the quality of graduates produced by the school (Basheka, Nkataand & Barifaijo, 2013; Blasko & Rashchman, 2015). Internal quality assurance frameworks are based on the premise that an institution's teaching-learning process is only as good as its teachers (Biggs, 2002; Schindler, Puls-Elvidge, Welzant & Crawford, 2015). How teachers and administrators perceive their roles and the quality assurance system's functions in achieving quality education can indicate the degree to which strategies and techniques align with the institution's mission and vision (Netshifthehe, Nobongoza & Maphosa, 2016; Williams, 2016).

Table 5. Relationship between Perceived Tasks of Quality Assurance Systems and Perceived Impact on the Teaching-Learning Process

Variables	Perceived Impacts	
	r	p-value
Perceived Tasks	0.89	p<0.001

As shown in table 5, there is a strong to perfect positive relationship between the perceived tasks of the Quality Assurance System and the perceived impact of these tasks on the teaching-learning process.

Quality assurance is a strategy of all higher education institutions to gain recognition in the international arena, especially among the developing and poor countries (Ryan, 2015). It is focused on improving the teaching-learning process to provide quality education (Javier, 2015; Jung, Wong, & Belawati, 2013). The way the people whose responsibility is focused on providing quality education understand the importance of quality assuring teaching and learning will there be a quality culture and be able to meet expectations and standards (Netshifhefhe, Nobongoza & Maphosa, 2016). The quality assurance framework is always intertwined with the organization's goals and quality of teaching and learning (Chong & Ho, 2009).

Table 6. Difference of Responses of the Participants in terms of Age, Gender, Educational Attainment and Position

Variables	Age	Gender	Educational Attainment	Position
Perceived Tasks	F(4)=1.74 p=0.153	t(65)=0.77 p=0.447	F(2)=2.33 p=0.106	t(67)=0.39 p=0.697
Perceived Impacts	F(4)=1.59 p=0.188	t(65)=0.12 p=0.905	F(2)=2.12 p=0.129	t(67)=0.26 p=0.793

The table above shows no significant difference in the perceived tasks of the Quality Assurance System and its impact on the teaching-learning process of the respondents in terms of age, gender, educational attainment, and position.

The demographic characteristics of participants did not influence the perceived tasks of the quality assurance and the perceived impact of the tasks on the teaching-learning process. According to Newton (2000) and Williams (2016), the teaching-learning process is based on mutual trust in performing quality assurance activities to achieve the desired results and not the physical characteristics of people concerned in achieving and maintaining quality. Establishing quality culture that involves everyone in the institution creates an environment that embraces and assumes that implemented strategies are effective, significant, and equitable to the institution's goals (Technological Higher Education Association, 2017).

Table 7. Difference of the Responses of the Participants on the Perceived Tasks of the Quality Assurance in terms of the Department they belong

Department	M	SD	N	df	F	p-value
CAS	3.11	0.65	19	7	8.38	<0.001
CBE	1.98	0.65	10			
CMAMP	3.42	0.51	13			
CON	3.64	0.40	6			
CEA	3.87	0.30	5			
CIT	2.95	0.62	5			
COA	3.13	0.52	4			
OFFICES	3.4	0.55	5			

Results showed that there is statistical difference in the responses of the participants on the perceived tasks of the Quality Assurance System. Among the Departments, CBE (College of Business Education) perceived that the given items are not the tasks of the Quality Assurance System because the ten (10) respondents, 1 dean and 9 faculty disagree that the given tasks are not the job of the Quality Assurance System.

Table 8. Difference of the Responses of the Participants on the Perceived Impact of the Tasks of the Quality Assurance System on the Teaching-Learning Process in terms of the Department they belong

Department	M	SD	N	df	F	p-value
CAS	3.30	0.55	19	7	10.12	
CBE	2.15	0.58	10	<0.001		
CMAMP	3.62	0.39	13			
CON	3.64	0.50	6			
CEA	3.80	0.18	5			
CIT	3.43	0.47	5			
COA	3.25	0.29	4			
OFFICES	3.37	0.51	5			

Base on the result of One-way ANOVA, there is a significant difference in participants' responses according to their Department. CBE (College of Business Education) believed that the Quality Assurance System's tasks did not affect the teaching-learning process because respondents disagreed with the Quality Assurance System's assigned tasks.

When participants are grouped according to their Department, the difference in their responses regarding their perception of quality assurance tasks and the impact of these tasks on the teaching-learning process can be explained by Quality Assurance Principle 5. Such a principle states that for quality assurance policies/strategies to be significant, they must be proportionate to the needs a. (Technological Higher Education Association, 2017). Different teachers and departments have various effective initiatives, necessitating a variety of operational quality assessments and commitments (Matei & Iwinska, 2016).

### Conclusions and Recommendations

The perceived tasks of the quality assurance system are perceived to have a strong impact on the teaching-learning process. Indirectly, the respondents understand the roles and functions of the quality assurance system of the University in improving the quality of education offered by the institution. This means that the people who have been given the responsibility to implement quality assurance in teaching and learning embrace the requirements and standards set by accrediting bodies for the best outcome – globally competitive graduates.

The study was based mainly on the perceptions of quality education and the roles and responsibilities of a newly created quality assurance system. No pre-survey information was given to the respondents. The study was limited by its objective of just finding out what they think would be the tasks of the quality assurance system and how it has influenced the teaching-learning process to which the faculty and deans are the main players. In this regard, the following recommendations were given:

1. Institutions must provide information on the possible creation of programs and departments that are recommended by accrediting bodies to enhance the delivery of quality education;
2. A culture of quality must be practiced through policies and regulations to give insights that quality is everybody's concern and responsibility;
3. All teaching and learning activities emanate from the curriculum so that people entrusted to implement them must embrace their roles through accountability; the institution, therefore, must emphasize responsibility among its academic employees even at the beginning of their term;

4. Lastly, the quality assurance system is not an independent part of the school and the institution must ensure that the quality assurance system is the school, the individuals that make up the school and the students that rely on the institution to be part of the hired classes of graduates through the feedback system, making all feedback, big and small, relevant and trivial be given a chance to be considered in the pursuit of excellence and quality.

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***Letting Students Explore What It Takes to Become a Good Communicator –  
A Metacognitive Approach to Promote Language Learning***

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**Abstract**

When it comes to teaching speaking skills in a foreign language classroom, instructing grammatical knowledge, building up vocabulary and formulated expressions, and practicing model conversations can be some of the useful teaching methods. However, we need to ask ourselves if our classroom instructions are designed to help students synthesize that fragmentary knowledge into practical knowledge for real-life conversational occasions. The conversation is a spontaneous activity affected by many elements contributed by the participants, such as their language proficiency, their relationships with each other, existing knowledge on the topic discussed, and so on. Thus, students must be trained to acquire skills that allow them to flexibly adapt to casual conversational situations in collaboration with other participants. Taking this into account, this research focuses on the metacognitive effects of an instructional method that incorporates an experiential learning framework. This method intends to foster students' practical conversational skills in English through phased collaborative reflections on their free talks with their peers. Through metacognitive reflections on their performances, students came to see for themselves what it takes to become a good communicator.

Keywords: Foreign Language Education, Metacognition, Reflective Thinking, Experiential Learning, Adaptive Expertise

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## Introduction

Under the Japanese public English education system, people study English at least for 6 years in schools, however, many Japanese adults publicly say, “I can’t speak English.” This is because students learn about the language and are hardly ever encouraged to think critically about what such knowledge means to them. We need to provide our students with opportunities to transform their conceptual knowledge into practical knowledge through self-directed learning.

Learning a foreign language is a complicated process. If you want to master it, you need to devote thousands of hours of hard work to studying it and using it in meaningful contexts. However, when it comes to teaching a foreign language in a school setting, there are many things to consider. Students do not have an unlimited amount of time or willingness to spend studying the language. Instructing students of various backgrounds in the classroom environment requires careful planning, too. In many foreign language classrooms, lessons are often organized around subdivided grammatical items or communication skills and often taught separately in different sessions on different days. The limited number of hours available for English courses in the school curriculum can be one reason why this is done. One of the benefits of subdividing instructional items and teaching them in phases is that it can help students cognitively process learning contents. It is also easier for teachers to keep track of students’ current proficiency levels and know what knowledge and skills they need extra support on. Most of all, that is considered to be the most efficient and transparent way to organize and monitor teaching in the school setting.

The biggest problem of this type of instructional style is that while teachers may believe that this fragmentary knowledge and skills will eventually come together and students will become proficient language users, students may not always share the same belief. I have overheard many students saying learning English is a pain and it means nothing to them. Some students even tell me in the fact that there is no point in studying English because they will never use it in the future. The students who say that learning English is meaningless may have many different personal reasons to feel that way. Nonetheless, too much focus on micro-level skills and knowledge and less time for synthesis of such knowledge and skills may demotivate them in English learning. Students study complex grammatical usage such as present perfect and past progressive and may study hard to get good grades on tests. But if they cannot feel how and when exactly such knowledge can be useful in the actual day-to-day situations, they will not find meaning in learning them. What happens in the textbook exercises and model conversations are applicable only in the situation they appear in the textbook. The real-life situations are more complicated and are easy to be influenced by conditions happening at that moment. How can we expect our students to see the value of learning grammar and language skills if they do not know how and when to apply them in the real world?

As English education professionals, we should think about ways for students to synthesize knowledge through self-discovery. The subdivided skills or grammatical knowledge taught in class are only useful on the conceptual level until they get to use it in a meaningful context. We need to set up times and occasions for students to experiment the language use and reflect on their mistakes and fix them at several points in their learning process in class.

Considering the above, I have designed a classroom pedagogy to help foster students’ practical conversational abilities through experiential learning. In this method, students are

given multiple opportunities to synthesize the knowledge acquired in previous lessons through off-the-cuff conversations with their peers. Collaborative reflections with peers and the teacher are systematically incorporated to stimulate students' metacognitive awareness. Experiential learning using this instructional method in English language classrooms can help students think for themselves about what it takes to become a good communicator.

## Literature Review

To develop foreign language proficiency, one must have plenty of opportunities to use the target language in meaningful contexts. Nation (2013) says a well-designed course must consist of 4 strands: meaning-focused input, meaning-focused output, language-focused learning, and fluency development. This is to say, teaching students conceptual knowledge about the language is indeed an important part of teaching, however, students will not become a well-balanced language user if they are not given chances to experience the language use in situations that are relevant to them. This becomes especially significant when we teach students to use English as a means of communication because in real life, "people use language to talk about what they know and what they want to know more about, not to talk about language itself" (Snow, Met, & Genesee, 1989). Experiencing language use in meaning-focused contexts also serves as an "incentive for language learning insofar as it is interesting and of some value to the learner and therefore worth learning" (Snow, Met, & Genesee, 1989).

Experiential learning is an instructional method suited for incorporating language-focused teaching and meaning-focused language use. Experiential learning is also explained as "learning through reflection on doing" (Felicia, 2011). It encourages the learners to put their current knowledge and skills into practice in a meaning-focused context, and later come to their realization of the gap between their actual self and their ideal self through multiple occasions of reflective thinking. When the learners reflect on their performance as a practitioner in a quasi-real-world situation, they will, like it or not, find out what they thought they had understood but had not, or they did not know at all. This encounter with the gap in their conceptual knowledge and the knowledge needed to solve the problem at hand would force them to think critically about what they now need to do to fill the gap. When learners are engaged in this process, they are acting as an 'agent' in their learning, not as passive recipients of the information provided by someone else. 'Agent' is "an individual who perceives, analyses, rejects or accepts solutions offered, makes decisions" (Swain, 2006). It is this process of learners acting as the 'agent' in their learning process that makes the synthesis of conceptual and practical knowledge possible, simply because "Knowledge is constructed, not received" (Bain, 2004).

One of the most important elements in experiential learning is the fact that learners not only try out their existing knowledge at a task, but they contemplate on their learning through multiple occasions of self-reflective thinking. Kolb's experiential learning theory (2014) sets out four stages of learning. It starts with a concrete experience, immediately followed by reflective observation, then abstract conceptualization occurs, after which active experimentation takes place. In other words, experiential learning involves a "learning cycle or spiral where the learner 'touches all the bases'— experiencing, reflecting, thinking, and acting—in a recursive process that is responsive to the learning situation and what is being learned." (Kolb, Boyatzis, & Mainemelis, 2001). When learners are given opportunities to engage in cognitive simulations like this, they visualize themselves executing activities skillfully to enhance subsequent performance (Bandura, 1989). Through the continuous

practice of this kind, learners are expected to develop adaptive expertise (Hatano & Inagaki, 1986), which enables them to flexibly generate new procedures to execute in different real-life situations. According to Dewey (1938), education is the means of social continuity of life. He suggests that the knowledge and skills acquired in one situation become “an instrument of understanding and dealing effectively with the situations which follow. The process goes on as long as life and learning continue” (p. 44). This means that learning is a continuous act of doing and thinking reflectively. We can see this in our simple everyday experiences such as cooking, for example. When making miso soup for the first time, an individual might put too much miso in the soup, and it becomes too salty. In the next trial, she puts less miso, but it is still a bit salty. Learning from these experiences, she would put just a little bit less miso this time. The soup turns out a lot more delicious than the one from the first trial. As such, what happened in the previous experiences are carried on to the next, and knowledge and skill are gradually refined for practical use. This is exactly why reflective thinking needs to be incorporated in the experiential learning process several times instead of just once as a concluding task. Most importantly, in experiential learning, the act of experiencing and reflective thinking are both done by the learners themselves. Learning through such self-discovery favorably affects learners’ retention (Shaffer, 1989) as well.

While reflective thinking enables self-discovery, it “needs to happen in the community, in interaction with others” (Rogers, 2002), if we want our students to get the most of it. It is particularly important in an English language classroom as the main objective of learning the language is to become a proficient communicator using English. There are several reasons why reflective thinking in interaction with peers serves the best purpose. When students work in collaboration with their peers, they feel emotionally more secure than working with the teacher. As a consequence, conversational interactions occur frequently (Sato & Lyster, 2007), so there are more opportunities for fluency development (Ellis, 2005). Furthermore, when students are faced with linguistic problems in their conversation, they can put their heads together to think about the problems in collaboration and exchange their reflective thoughts to learn the language using the language (Swain & Suzuki, 2008). When support is given to the students to work interdependently with each other (Johnson, Johnson, & Holubec, 1994), more capable peers will try to help others (Vygotsky, 1980) to fill the gaps in their knowledge or language proficiency. Thus, collaborative reflective thinking with peers allows for students to co-construct knowledge about the language using the language (Swain, 2000).

## **Method**

### **1. Target Population**

This activity was introduced to students in a general English class at a 4-year university in the Kanto area in Japan. The class met once a week for 90 minutes for 15 weeks. There were 16 students all majoring in social welfare. Their English proficiency was more or less elementary level. The homogenous nature of the classroom population in this class worked positively for this method because students shared the same first language. Hence, students were more likely to be able to exchange their deep thoughts using the common language with their peers.

## **2. Description of the Method**

The 15-week course is comprised mainly of sessions for language-focused instructions and for experiential learning sessions called Free Talk, alternating each week. A topic-based textbook is used since it is easier for students to relate to topics rather than a grammar-based approach. Each unit is focused on a topic and taught in two sessions, with language-focused instructions on the first week and Free Talk on the second. During the language-focused session, students learn and practice grammar, vocabulary, and useful set phrases for the topic of the unit. The teacher gives students a list of useful set phrases for them to memorize by the following week. Students test each other's memory in pairs in the following session by reciting them. After that, they engage in Free Talk and synthesize the conceptual knowledge learned in the previous week by experimenting with its use in free conversation with the partner. Free Talk is divided into six steps.

### **Step 1: Talk Round 1 (4 minutes)**

The first Talk Round is for students to experience if they can carry out a natural conversation for four minutes, using the knowledge learned in the previous language-focused session. Students are put into pairs and told to talk about the topic given, which is closely related to the topic focused on the previous week. The teacher tells the students to continue talking until the time is up. She tells them not to use the dictionary nor stop talking to write things down. She also tells them that they can use their first language, Japanese if they cannot continue talking due to the difficulties in expressing what they want to say in English. There are three reasons for these restrictions. Firstly, if they stop talking to check for words in the dictionary or take notes, their train of thoughts would be cut off and they would forget what they were talking about when they resume their talk. Secondly, this round is meant for the students to get many ideas out for a rich and natural conversation so that they can have many contents to work with during the following reflective stage. Thirdly, frustrations and mistakes are encouraged during the experiencing stage. The more they experience them, there will be more learning opportunities for them later.

### **Step 2: Collaborative Reflection 1 (20 minutes)**

After four minutes of free talk in pairs, students are asked to recall their talk and write down in their log the things they said in Japanese, they wanted to say in English but could not, and they said in English but are not sure about their accuracy. Students are encouraged to use any tools available, such as the dictionary, notes from the language-focused session, and the internet. They are also told that they could ask the teacher for help if they cannot solve their problems by themselves. During this stage, students try their best in collaboration with their partners to find out how they can use the knowledge already learned and apply it to the meaningful situation happening at this moment. Through this intensive thinking, students create an abstract conceptualization of their knowledge.

### **Step 3: Talk Round 2 (3 minutes)**

This stage is for the students to experiment with the abstract concept they have just formed through reflective thinking. During this second round of speaking, the same pairs talk about the same topic for three minutes. Again, students are instructed not to pause or take notes. This time, they are encouraged to keep the Japanese use to the minimum. Students should be able to keep the conversation going mostly in English this time.

**Step 4: Collaborative Reflection 2 (20 minutes)**

This stage looks very similar to Step 2. Students look back on Talk Round 2 and write down their reflective thoughts. They share their thoughts with their partners and solve the problems that came up this time together. At this stage, the teacher encourages students to push themselves a bit more by incorporating some of the useful expressions they memorized and recited earlier on into their next round of talk if they already have not done so.

**Step 5: Talk Round 3 (2 minutes)**

Students again talk with the same partner for two minutes. In this round of talk, the conversation is recorded to give them a little bit of pressure so that they push themselves for their best performance. Also, in this stage, two pairs are put together to form a group of four. They take turns and observe the other pair while they are talking.

**Step 6: Collaborative Reflection 3 (30 minutes)**

Step 6 is done concurrently with Step 5. In this step, students would take turns and observe other pairs doing Step 5. Then would then exchange feedback and reflect on their overall performances. While observing the other pair, students fill out an observation sheet to look critically at the other pair's conversations in terms of the way they communicate and the way they use English. By doing this, students are inevitably forced to look reflectively at their way of communication and the use of the English language. They then look critically at their own experience and write down reflective notes to summarize the learning they had during this experiential learning activity. This is when they are expected to experience abstract conceptualization.

**Results & Discussion****1. Metacognitive Experiences in Collaborative Reflection**

Collaborative reflections force learners to use their metacognition. Metacognition can be classified into two types of categories: metacognitive knowledge and metacognitive experiences (See Figure 1). Flavell (1987) defined metacognitive knowledge as one's knowledge or beliefs about the factors that affect cognitive activities. Nelson and Narens (1994) described that metacognitive experiences involve monitoring and control. They explained that monitoring takes place when the meta-level obtains information from the object-level. Some example actions involving monitoring are awareness, feeling, prediction, checking, and evaluation. Control, on the other hand, takes place when the meta-level modifies the object-level. This occurs when one is engaged in goal setting, planning, and revision.

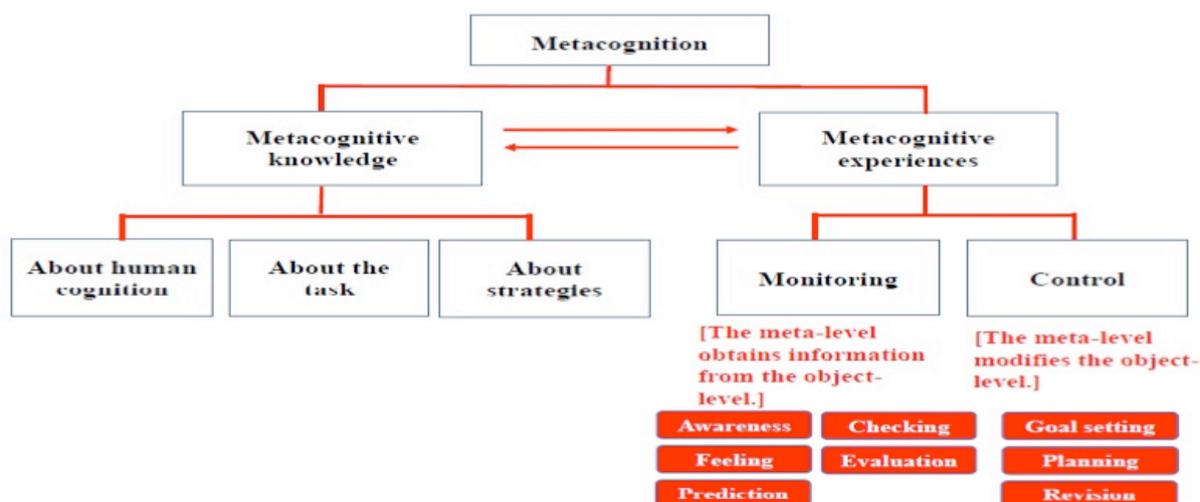


Figure 1: Metacognitive Framework

When Nelson & Naren’s metacognitive experiences are applied to this speaking activity (See Table 1), we can assume that students exercise both monitoring and control in Steps 2, 4, and 6. In Step 2, students reflect on their 4-minute conversation with their partner and write down things they couldn’t say in English or things they spoke but were unsure whether if they were expressed correctly. When they are doing that, we can expect that they become aware of what they need to work on the next time. This awareness is an action categorized as monitoring in the metacognitive experiences. When they check unknown words in the dictionary, they again exercise monitoring as they do the checking. Furthermore, when they recompose their English sentences to prepare for the next 4-minute talk, they exercise control as they do the planning. In Step 4, students would evaluate what went right and wrong and revise their sentences. They would also plan on how to make the conversation more natural in the next attempt. In this stage, students exercise both monitoring and control as they evaluate, revise and plan. In Step 6, students would observe another pair and exchange feedback afterward. The act of observation involves evaluation and checking. Getting feedback from peers would most likely lead them to get the awareness of their strengths and weaknesses. These learning activities involve monitoring. When they write a reflection after receiving feedback, they would objectively think about what needs to be improved in their future attempts. This goal setting is an action characterized as control.

	<b>Learning Activity</b>	<b>Metacognitive Experiences</b>
Collaborative Reflection (Step 2)	Write down things they couldn’t say in English	Awareness (Monitor)
	Check unknown words in the dictionary	Checking (Monitor)
	Recompose their English sentences	Planning (Control)
Collaborative Reflection (Step 4)	Reflect on what went right and what went wrong	Evaluation (Monitor)
	Revise their English sentences	Revision (Control)
	Plan on how to make their conversation more natural	Planning (Control)
Collaborative Reflection	Observe performance by other pair	Evaluation (Monitor)
	Fill out the feedback sheet for the other pair	Checking (Monitor)

(Step 6)	Reflect on their performance as they listen to peer's feedback	Awareness (Monitor)
	Write a reflection and set goals for the future after receiving peer's feedback	Goal setting (Control)

Table 1. Metacognitive Experiences in Collaborative Reflection

## 2. Learning Results from Collaborative Reflection

At the end of the semester, students wrote a reflection sheet about their experiences on the free talk activity. Table 2. shows what students wrote about a question of “What did you learn from observing other pairs and exchanging feedback?”. Some comments were mentioned by several students. The frequency of extracted comments is indicated in the right column.

Five students wrote, “good communicators use non-verbal communication such as eye contact and body language effectively. What this indicates is that many students recognized that communication is not just a matter of language but body language also plays an important part. Some factors that facilitate communication are universal regardless of the language being spoken, and it is significant that students themselves came to this realization. If they realized that communication was not just about the language, they would feel less reluctant to communicate in English. One student wrote “by observing other pairs, I found out that a conversation can develop differently in other pairs. It was interesting because we were all talking on the same topic.” This comment sums up what students should know about communication in real-life situations. That is, how a conversation develops is determined by so many different factors such as the participants’ interests and existing knowledge. So when the participants change, the content of the conversation would naturally change, too. Just like a comment “I learned that conversation is a collaborative act. It takes two to make it work,” indicates, every utterance each speaker makes is a contributing factor that directs the way the conversation develops. This is exactly why students need to develop adaptive expertise rather than routine expertise to become good communicators.

<b>"What did you learn from observing other pairs and exchanging feedback?"</b>	<b>Extracted comments</b>
Good communicators use non-verbal communication effectively (eye contact, body language, etc.).	5
Exchanging feedback allowed me to recognize my strengths and weaknesses objectively.	4
Conversation can develop differently in other pairs although we were all talking about the same topic.	1
Willingness to communicate feelings is more important than grammatical correctness	1
A conversation is a collaborative act and it takes two to make it work.	1
By observing other pairs, I realized what kind of responses can appear natural in a conversation.	1
A conversation can develop more naturally and smoothly if you start off with small talk before getting into the main topic.	1
I learned some ways to keep the conversation going without having unnatural pauses.	1
I learned different ways of communicating by observing other pairs.	1

Table 2. Students' Reflective Comments About Learning Results from Collaborative Reflection

## Conclusion

In conclusion, while teaching grammatical knowledge, building up vocabulary and formulated expressions, and practicing model conversations can benefit students to become good English speakers, students also need to be given opportunities and instructions on how to synthesize all that knowledge. For foreign language learners, who rarely get the chance to use English outside the classroom, this free talk speaking activity can help them realize how to respond to real-life speaking situations. We saw that collaborative peer interaction can enhance students' learning as they experience metacognitive monitoring and control in their learning process. Through such metacognitive experiences, language learners would learn to think about what it takes to become good communicators. As we saw in students' reflective comments, good communication is not just about how to use grammar and vocabulary, but rather how you try to relate to others. This is something foreign language educators also need to keep in mind when planning their classroom pedagogy.

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***Nursing, Health Technician and Midwifery Students' Perceptions of Their First Fully Online Learning Experience During the Covid-19 Pandemic: A Cross-Sectional Study***

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**Abstract**

This paper examines undergraduate nursing, health technician and midwifery students' perceptions of their first fully online learning experiences during the COVID-19 pandemic period. Online learning was a solution for several countries during the COVID-19 pandemic to pursue studies and protect students. Understanding nursing students perceptions of their experiences related to the online learning is crucial to achieve effectively online learning objectives. Hence, we conducted a mono-centric cross-sectional descriptive study to examine learner's perceptions of their online learning experiences during this difficult time. This research was conducted among 648 students between 16 March and 16 May 2020 at a public nursing institute in Morocco. STROBE reporting guidelines were used to report findings. The results are encouraging. Students perceived positively their first fully online learning experience. Surprisingly 58% of participants were satisfied from this learning modality. In contrast, heterogeneous opinions surrounded the credibility/pertinence of online learning assessment. This pandemic period was an opportunity to explore the educational potential of online learning in our context. Hence, our institute is called to reinforce integration of online learning-teaching strategy to meet learner's styles preferences and improve nursing education quality.

Keywords: Online Learning, Students' Perceptions, Nursing Students, COVID-19

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## Introduction

The current Corona-virus disease (COVID-19) appears for the first time in Wuhan (China) in late December 2019. Since the world health organization (WHO) had declared the COVID-19 outbreak to be a pandemic on March 12, 2020 (WHO, 2020), by March 18, 2020, 107 countries had adopted national school closures (Viner et al., 2020). There is a consensus that the current pandemic (SARSCoV-2) has severally altered lives around the world. The novel SARS-CoV-2 pandemic context has shifted in how students are educated. During this difficult time, online learning has become the norm. In Morocco, the pre-licensure nursing, health technician, and midwifery program is administered entirely face-to-face.

In order to ensure continuing nursing education, The High Institute of Nursing Professions and Health Techniques (ISPITS) has been mobilized to allow students to pursue their theoretical courses online. Since March 16, 2020, once the decision to suspend face-to-face courses was made, an ad-hoc vigilance committee was formed to consider potential solutions. Note that the majority of our instructors and students were not educated on a particular learning management system (LMS) in our setting. Furthermore, the urgency of this change encourages teachers to use whatever technical and pedagogical resources they choose to achieve the goals of their online learning programs. Effectively, one of the most challenge aspect of online learning is that learners and teachers lack the knowledge and skills needed to use an online LMS for the first time (Georgouli et al., 2008). Instructors were assisted by a computer science doctor-engineer during this transition to help them solve the challenges they encountered using the technical methods they selected. After two weeks of guidance, online learning has taken the right path. The main goal was to ensure that pedagogical support was provided in the best possible ways to achieve curriculum learning outcomes.

Online learning saves time and money, provides a variety of multimedia supports to accommodate different learning styles. It also allows students to learn from anywhere, and respects their learning rhythms. By moving the instructional model from teacher-centered to learner-centered pedagogy, e-learning innovations are reshaping the educational paradigm (Oye et al., 2014). According to Parsazadeh et al. (2013), the performance determinants in online education are the accessibility of students and instructors, student satisfaction, and online pedagogical resources. The success or failure of graduate students who use emerging technology in their studies is unclear (Park et al., 2010). A systematic analysis by Childs et al. (2005) identifies a number of barriers to online learning, including institutional and financial issues, software and hardware use and attainability, support usability, pedagogical methods, and instructors' digital skills. Learners must feel that these technological learning systems are serving them to reproduce face-to-face learning experiences and meet their pedagogical demands (Sharma et al., 2016). In other terms, optimize their effort and performance expectancies (Venkatesh et al., 2003). Then, their digital skills, knowledge and familiarization with online learning platforms predict the effectiveness of learning management systems implementation (Lee et al., 2013). Indeed, in online learning, a user-friendly and intuitive platforms design is more important that is well maintain and enhance student motivation, as well as the integration of self-evaluation functionalities to ensure that learners are properly, intentionally engaged in the learning process (Xu and Mahenthiran, 2016).

Students' perceptions of their online learning are critical indicators of any online learning strategy's success (Pahinis et al., 2007; Redmond et al., 2018). The objective of this study is to examine nursing, health technician and midwifery students' perceptions of their first fully online learning experiences during the COVID-19 pandemic.

## **Methods**

### **Design**

Across-sectional quantitative mono-centric survey design was undertaken using an online questionnaire survey to describe students' perceptions of their first fully online learning experiences.

### **Setting**

This study was conducted in a large Moroccan public institute of nursing, health techniques and midwifery that offers 12 pre-licensure degree programs: general nursing, intensive and critical care, anesthesia, mental health, neonatal, radiology, laboratory, social assistance, physiotherapy, community health, orthoprosthodontist and midwifery. The whole theoretical modules are delivered in solely face-to-face teaching-learning modality.

### **Participants**

This research was open to all institute students (N=643) enrolled in the second, fourth, and sixth semesters. Students were assured that their grades would not be impacted by their involvement or non-participation in the survey to enable them to participate and that their participation is voluntary. With an 89 % response rate, 573 students agreed to participate in the questionnaire survey.

### **Measurement: Questionnaire Survey**

A quantitative descriptive analysis was used in this original study. Data was collected via a questionnaire survey exploring the students' perceptions of their first fully online course, using Kirkpatrick's four-level assessment model (first level: reactions) (Kirkpatrick, 1998), using an online survey. This instrument consists of 7 multiple-choice close-ended questions. The first two questions interest the technical aspects of their online learning experiences and concern digital devices and platforms used during online learning. Each query included six to nine statements. Students' online learning background, interactivity, assimilation of learning goals and satisfaction are all addressed in the last five questions. These questions were answered on a 5-point Likert scale, with responses ranging from "Very dissatisfied" to "dissatisfied," "very satisfied," "satisfied," and "Very satisfied." The characteristics of the participants (gender, age, specialty, and pre-licensure semester) were also recorded. Data was collected over four days in May 2020.

### **Data Analysis**

Quantitative data analyses were carried out using Microsoft Excel software. Descriptive statistics were used to report demographic characteristics of the participants. Mean (M), standard deviation (SD) and range were used to describe participant age. Proportions (%) aimed to describe gender and number of participants per specialties, semester and to present students' perceptions of the different aspects of online learning surveyed.

## Ethical Improvement

Eligible students were contacted by email and informed that answering the survey implied their consent to participate in the study. They were told about the study's goals and that their information would be kept private. A password was used to restrict access to the online survey's registered data. We have also obtained the nursing institute approval to recruit students to this study.

## Results

### Participants' Characteristics

The research included 573 of the 648 eligible students, and their data was analyzed. The demographic profile of the participants is presented in Table 1. The responders are mainly young (mean age: 21) Moroccan female students (88%). 36% of participants are undertaking the pre-licensure degree in general nursing and 48% of them were in the second semester.

Characteristic	Value
<b>Age</b>	
M (SD)	20.64 (2.42)
Range	18-44
<b>Gender</b>	
Female n (%)	505 (88%)
Male n (%)	141 (12%)
<b>Semester</b>	
Second	278 (48%)
Fourth	190 (33%)
Sixth	105 (18%)
<b>Specialties</b>	
General nursing	246 (43%)
Anesthesia	30 (5%)
Intensive care	40 (7%)
Neonatal	22 (4%)
Mental health	41 (7%)
Midwifery	22 (4%)
Radiology	42 (7%)
Laboratory	31 (5%)
Social assistant	9 (2%)
Community health	80 (14%)
orthoprosthodontist	10 (2%)
N	573 (100%)

Table 1: Participant's Characteristics  
M: mean; SD: Standard deviation.

### Students' Online Learning Experience

The online learning background experience has shown that 58% of participants (n= 332) did not experienced a fully online learning modality before this period of COVID-19 (Fig. 1).

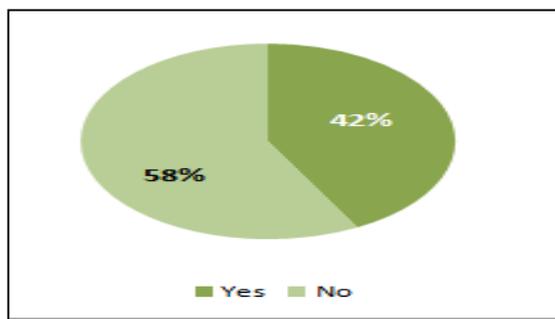


Figure 1: Students' E-Learning Background

### Digital Devices Used to Attempt Online Learning Courses

75% of participants used Smartphone to achieve their online course. The laptop was employed by 19% of them.

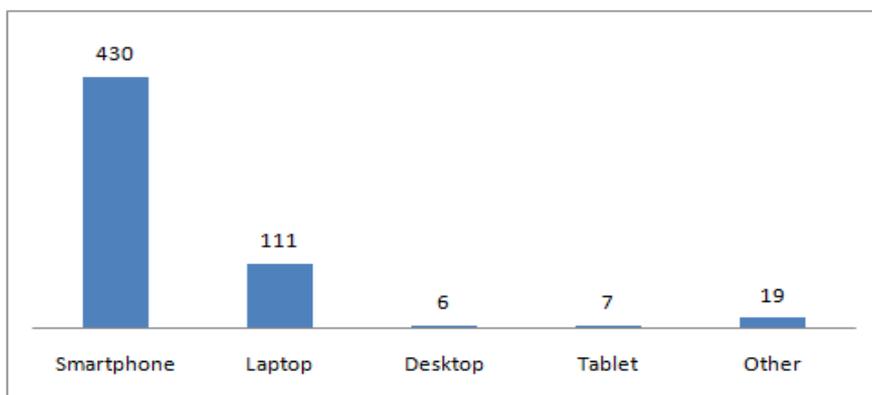


Figure 2: Digital Devices Used by Students During Online Learning

### Online Learning Courses Interactivity

High levels of agreement 71% (n=405) were associated students' online learning modality interactivity. Otherwise, 29% (n=168) of students found the distance learning delivered by institute pedagogical staff non interactive (Fig. 2).

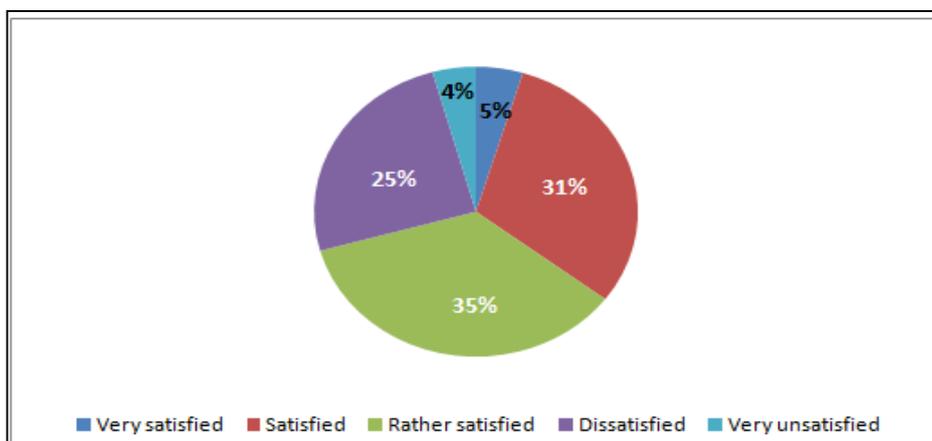


Figure 3: Online Courses Interactivity Students' Satisfaction

## Online Learning Platforms

The most platforms used by students during their online learning activities were WhatsApp social network with a rate of 43%, Google Classroom come in the second position with 32% of participants (Table 2). The combination “WhatsApp + Google Classroom” was used by 47% of participants. These same platforms (especially WhatsApp with 77%) were commonly used by students to communicate and share didactic content between them (Table 2 and 3). Zoom with 63% was the most videoconference platform used to attempt synchronous audio-visual didactic content (Table 4).

Learning Platform	%
WhatsApp	43
Google Classroom	32
WhatsApp + Google Classroom	47
ZOOM	18
SimClasse	3
Others	5

Table 2: Platforms Used for Online Learning

Communication Platform	%
WhatsApp	77
Googleclassroom	16
Facebook	3
Gmail	1
Others	3

Table 3: Platforms Used by Students to Communicate and Exchange Didactic Content

Videoconference Platform	%
Zoom	63
SimClasse	14
Whatsapp	6
GoogleMeet	7
Facebooklive	3
WebEx	2
Others	5

Table 4 : Videoconference' Paltforms Used During Students' Online Learning

## Online Learning Objectives Assimilation

69% (N= 395) of our participants assimilated the didactic material and were satisfied from this education modality in terms of comprehensibility and assimilation of learning objectives. On the other hand, 31% of them didn't assimilate the content via this teachnig modality (Figure 3)

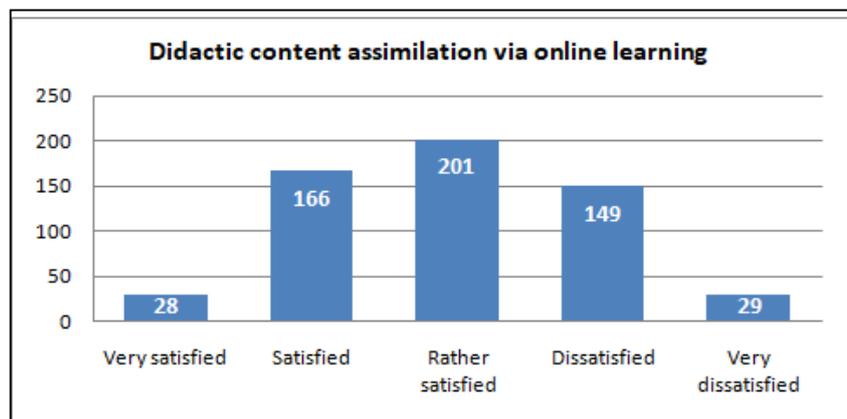


Figure 4: Students’assimilation of Didactic Content in Online Learning

### Online Learning Students’ Satisfaction

58% (332) of participants were satisfied from online distance learning modality (Figure 4).

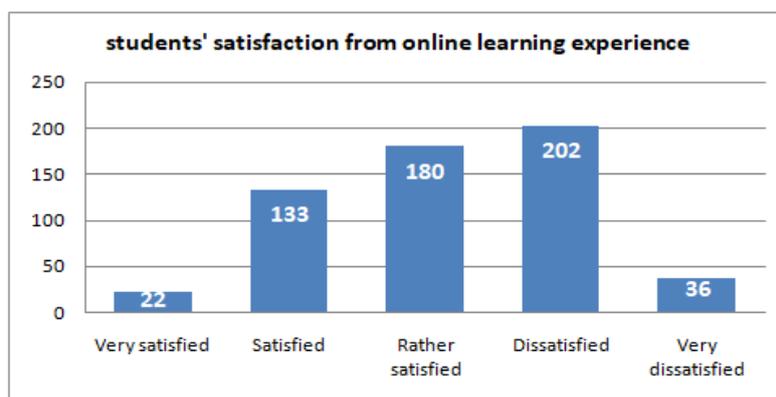


Figure 5: Online Learning Students’ Satisfaction

### Online Learning Evaluation Credibility and Pertinence

33% (190) of participants were partially agreed about pertinence and credibility of online learning assessment; while 18% (133) of participants thought that online learning evaluation exams are credible and pertinent. In contrast, 44% (250) had stated their disagreement with this assessment modality (see Fig. 6).

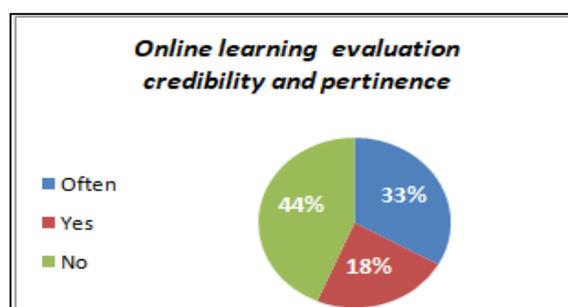


Figure 6: Students’ Online Learning Evaluation Credibility and Pertinence

## Discussion

Nursing curricula are approving centered-learner active strategies including online courses and blended learning, to achieve and match different learners' styles and programs objectives (Gaston and Lynch, 2019). This study provides an insight into the nursing, health technician and midwifery undergraduate students' perceptions of their first fully online learning during the COVID-19 pandemic. The foremost surprisingly result of this original study has shown that students have been overall satisfied from the online learning, despite it was their first fully online learning experience. Effectively, 58% of participants were satisfied despite of a lack in their institutional online learning policy in addition to the socioeconomic conditions in a developing country especially in the COVID-19 time witch can impair online learning quality experience (Horzum, 2015). The reported level of satisfaction may be linked to the constructivist approach learner-centered based of online learning education (Dorrian and Wache, 2009). The accessibility and ease use of online tools are foremost crucial for the successful online learning experience (Alhomod and Shafi, 2013). This result can also be explained especially that students of this generation used commonly some online platforms (particularly social networks) to learn and communicate outside the institutional framework. Generally, the most popular learning management systems (LMS) are Moodle and Blackboard (Timms, 2017). Both of them were not used by teachers to attempt online learning. A large part of participants (77%) relied on social network like "WhatsApp" to which they are familiar and Google Classroom (16%) to attempt their online courses. 47% of them employed a combination of these platforms. Effectively, Combination of different didactic supports (videos, pictures and voice) and offering amobile learning method (anytime, anywhere) has made WhatsApp a convenient, effective and student-friendly tool for online learning (Gon and Rawekar, 2017; Maske et al., 2018). This result is supported by Asiry (2017) study within students preferred social network to attempt their online learning activities.

This study also highlighted that online learning interactivity was positively perceived. 71% of students stated that the online courses were interactive using this social network platform. Indeed, instructors acknowledge the necessity to enhance social interaction for the goal of knowledge construction as it stated by constructivist pedagogical approach (Abrami et al., 2011). Development of teaching techniques that enhance learner's engagement and instructor immediacy is a fundamental in online learning interactivity (DellAntonio, 2017; Gaston & Lynch, 2019). In fact, when there is poor interactivity, learning styles preferences of students and the teaching techniques are mismatched, teaching become tiresome and non-interactive (Park et al., 2010). Learner engagement is a fundamental facet and trend of online learning education (Bonk, 2016; Centner, 2014). Thus, this research has demonstrated the effectiveness of social networks in the achievement of online learning courses interactivity. LMS constitute the heart technology platforms for the online learning (Xu and Mahenthiran, 2016). In addition, some studies stated that LMS offering structured interactive tools including wiki or discussion forum are necessary to improve student-centered active learning (Berkstresser, 2016; Park et al., 2010; Zou et al., 2015). In our context, no LMS was used in the online learning students' experiences.

Concerning online learning content assimilation, 69% of participants arrived to understand/assimilate the didactic content via this teaching/learning modality. This level of assimilation can be linked to interactivity and social constructivism elicited by this learning modality improving students' engagement and meeting their rhythm and preferences styles of learning. Effectively, students interact with didactic content, for example by having discussions with others, in order to anchor learning experience meaning (Nicol, 2006). Furthermore, the

assimilation of didactic content and enhanced interactivity improve students' self-efficacy. Thus, 58% of participants were overall satisfied from this learning method.

Assessment of students' learning outcomes is critical and must integrate course design and instruction (Muller et al., 2019; Oh et al., 2020). In relation to participants' online learning assessment perceptions, 55% of students surveyed revealed that online learning evaluation is overall credible and pertinent.

### **Limitation**

Although the aim of qualitative research is not to generalize (Morse, 2016). This was a study in a single site which limits generalizability. The study relied on students' self-reporting (perceptions) their online learning experiences which can be influenced by students' previous digital skills and personality. Objective measures of online learning were not collected and compared with student's perceptions. Furthermore, including focus groups in order to learn more about students' online learning perceptions would strengthen study results.

### **Bias**

All students have not the same digital skills, internet flow (3G/4G/ Wifi). Thus, it may influence the quality of online learning, consequently the quality of online learning experience. Furthermore, instructor's availability and digital competencies, instructional design (how didactic material is sequenced and presented) may influence learners' interactivity and assimilation.

### **Conclusion**

Participants had a positive perception of their first online learning experiences overall. This study presents a general picture of the learners' perceptions of the online learning experienced during the COVID-19 pandemic. Through preliminary results, it seems encouraging to review our institute education curriculum and start to integrate online learning strategies in nursing education curriculum. A large multi-centric research is merited to investigate instructors' perceptions of online learning strategy. The goal is to inform curriculum instructional designers and instructors on future online learning strategies to meet learners' style preferences and curriculum objectives. Thus, further large studies will enable to construct an overarching picture on this teaching-learning strategy and ensure that next institutional policies and resources reinforce more the online learning in the nursing and midwifery curriculum.

### **Acknowledgments**

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***Factors Pulling International Students to Japan: A Situation Analysis***

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**Abstract**

Japan has 312,214 international students in May 2019, successfully achieving the 300,000 international students target. This study investigates the factors pulling international students into Japan for higher education. Data for literature review was collected from mainly Japanese sources including research reports, review papers, statistics, and online materials, which addressing the issues of international students' mobility into Japan from 2008 until present. Data was reviewed qualitatively by comparative analysis, comparing the literature with the elements of 300,000 international students plan and the pull factors from the push-pull model. The results showed specific measures in strengthening campus internationalization, expanding international cooperation and alumni network, improving supporting services, diversifying scholarship schemes, job hunting support etc. could be considered as effective pulling factors. Moreover, while these factors could be applied effectively by some universities, it is hard for other universities to follow the same approach. The results imply obstacles to the mid-ranking public universities to attract more international students and the need to improve this situation.

Keywords: Study in Japan, International Student, Pull Factors

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## Introduction

Global international student mobility has been expanding consistently in the past two decades. In 2018, 5.6 million students worldwide went abroad to study, more than twice the number in 2005 (OECD, 2020a). The question of why students are pulled to their education destination overseas has been a long-time topic for studies conducted in various settings and circumstances. The most common theory for investigating the study abroad destination outcome is the “push-pull” model, which sees decision about destination of study abroad as the result of push factors, which exist within the source country and push students to go abroad, and pull factors, which come from the host country, or host institution and attract students to the host (Mazzarol & Soutar, 2002). In the past, the host country is often representing a technology advanced country, often a western and English-speaking country which seems attractive to students from developing countries (Figure 1). However, by the end of 20<sup>th</sup> century, emerging countries in Asia are making success to increase the international students’ share (Kuroda et al., 2018).

Since the end of 19<sup>th</sup> century, Japan become an Asian model of modernization and therefore received attention of surrounding countries. The first Korean students came to Japan in 1881, while the first Chinese students came to Japan in 1896 (Maruyama, 2011). Students from these countries had been attracted to Japan because of geographical proximity and cultural similarity. After the second world war, Japan had been emerging as a world economic power. Technological advance and unique culture provide Japan with more ability to attract international students, especially remarkable during the last two decades. Recently, number of international students studying in Japan, especially from Asia, has increased drastically, making it one of the top host countries in the world. As students from various countries are pulled to Japan for higher education, in this paper, we take a particular setting of Japan as a host country for international students, and investigate the pull factors at national level, which tent to be related to historical context and its transformation through out the whole process to reach the current magnitude and pull factors at lower levels which may vary by region, prefecture, or institution.

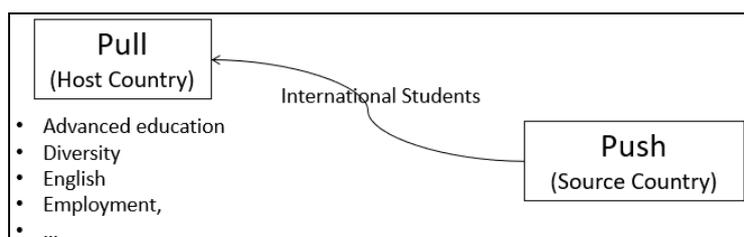


Figure 1: Pull Factors Attracting International Students

It could be observed from the past that the studying abroad outcome has been strongly influenced by push and pull factors. In our previous review, we proposed five push macro factors model that pushes students abroad (Tran & Jin, 2021). However, push factors alone could not explain why international students choose Japan as a destination. The attractiveness of study in Japan is become visible to the world, however, there is still little understanding about what are the pull factors that attract international students to Japan, and what are sub-national pull factors that make international students to decide to go to a particular region or institution in Japan. This paper is aiming to: (1) identify pull factors of study in Japan; (2) find evidence of pull factors from literature and implications for further study.

## Method

In this work we investigate pull factors from available literature. The literature search was conducted mainly by Google Scholar and other search engines such as Google, ERIC, Cinii. The search ranged mainly from 2000 to present. We did a literature review from documents, publications and reports published in Japanese language by Japan's public institutions, research institutions as well as public media, new articles, study abroad forums and other internet sources. We found a huge number of papers by the keywords selected (Table 1). Then we selected the papers that have full text and content that satisfied our information needs.

Table 1. Google Scholars Search Results (Japanese, Title, Phrase)

<i>Keyword</i>	<i>Japanese</i>	<i>All</i>	<i>since 2017</i>	<i>since 2021</i>
Study abroad	kaigairyugaku	7,100	2,040	277
Study in Japan	nihonryugaku	4,100	961	124
Int'l students	ryugakusei	83,800	12,800	1,700
Int'l students (in Japan)	gaikokujin ryugakusei		7,430	903
Japan gov. scholarship	nihonseifuushougakukin		1,990	218
Int'l st. w J gov. schol.	kokuhiryugakusei		473	52
Private int'l student.	shihiryugakusei		504	60

The pull factors exist in Japan are of particular interest in this paper. Pull factors are the items specific to a host country, such as economic power, level of influence, diaspora of immigrants etc. In this paper, we searched for pull factors according to several sources including general pull factors, socioeconomic factors, which are available at national level, factors specified by Japan Student Services Organization (JASSO) and policy-related pull factors as specified by "300,000 International Students Plan". Besides the factors above, we also look at socio-economic factors such as low fertility, regional revitalization, foreigner communities, etc.

## Results

### Transition of International Students in Japan

After the World War 2, Japan had become a study destination for students from many nations, such as Malaysia, Brazil, Thailand, and Singapore (Maruyama, 2011). Japan had made a proactive move to internationalize higher education following OECD's suggestions in 1971. There had been two major government initiatives which contributed to drastically increase of international student enrollments (Kuwamura, 2009). The Nakasone's plan in 1983, which aimed to attract 100,000 international students by 2020, had reached its goals in 2003. This plan was focusing on nurturing Japanese identity of Japanese students, and it targeted the international students as temporary visitors who would leave Japan after their graduation. From 1996 to 2000, the "10,000 Postdocs Plan" had been implemented to provide funds to research institutes to create 10,000 doctoral degree holders placed in a competitive environment in the research world (MEXT, 2002).

In 2008, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) formulated the "300,000 International Students Plan". This is positioned as a part of a global strategy that aims to increase the number of foreign students studying in Japan to 300,000 by 2020, opening Japan to the world and expanding the flow of human, goods, capital, and information. This plan had been focusing on the global competitiveness of Japan and aimed

to cultivate global human resources of its domestic students. From 2009 to 2014, the Global 30 (G30) Project aims to internationalize higher education in Japan through collective programs and policies of its 13 member universities. Since 2014, the government introduced the Top Global University Project for prioritized support for university reforms until 2023. Top Global Universities are categorized into 13 Type A (Top Type) universities that conduct world-leading education and research; and 24 Type B (Global Traction Type) universities that lead the internationalization of Japanese society (MEXT, 2021).

The 300,000 international students plan had reached its goals in 2019. However, this number includes long-term and short-term students (less than a year education in Japan), and comprises degree and non-degree programs: Japanese language students (29.5%), undergraduate students (29%), professional college students (22%), graduate students (17.4%), and others (2.1%) (JASSO, 2017b). Although this plan regarded international students as contributors to the Japanese workforce, the extent to which the Japanese community and universities are ready to accept these international students has been questioned (Rakhshandehroo, 2018; Rivers, 2010).

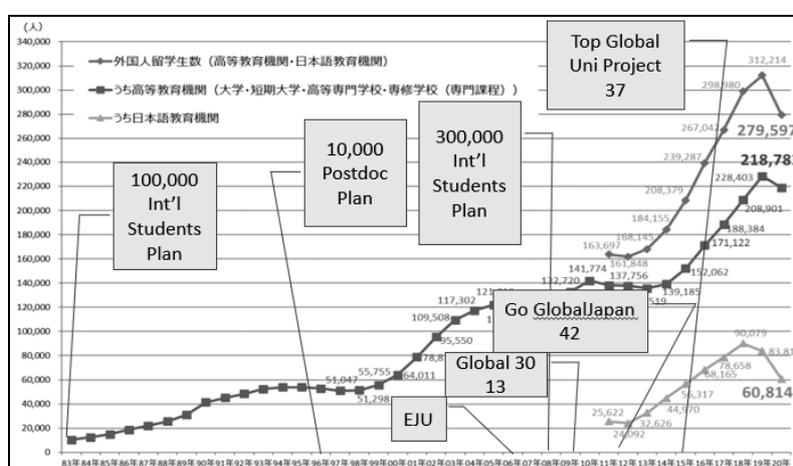


Figure 2: International Students in Japan (Source: adapted from MEXT, 2021)

Despite the efforts, the share of international students in Japan, at 3.4%, is also lower than the OECD average of 5.6% (OECD, 2020b). In May 2020, total number of international students in Japan is 279,597, decreased by 10.4% from 312,214 of the previous year (JASSO, 2020). The largest sending countries were China with 121,845 (down 2,591 from the previous year), Vietnam with 62,233 (down 11,156), and Nepal with 24,002 (down 2,306). This decreased number of inbound students was heavily influence by Covid-19 outbreak. The number of international students includes students who were unable to travel to Japan at the scheduled time because of the Covid-19 pandemic and were forced to take online classes overseas. While the number of non-regular courses such as universities, preparatory courses, and Japanese language education institutions has DEJU, the number of regular courses and vocational schools of universities and junior colleges is increasing. Travel restrictions had been taken by the Japanese government since January 2020, resulted in canceling or postponing acceptance, mostly had impacted non-regular courses. 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. For students such as government-sponsored students, as "special circumstances", entry will be resumed on condition that necessary measures are taken (MEXT, 2020). Among the total international students in 2020, 219,000 students entered higher education institutions (approximately 136,000 at university/college, 400 at college of technology (senko), 80,000 at vocational school, 3,000 at preparatory course), and

about 61,000 students entered Japanese language schools (JASSO, 2020). Figure 2 shows the rapid increase in number of international students during the last several years until the outbreak of Covid-19.

Looking at general pull factors, at first, we will describe the evidence of pull factors as world class education, rich nature and culture, affordable costs, socioeconomic (population decline), supportive environment, employment opportunities.

### Factor 1. World Class Education

Japan is known for its cutting-edge science, technology, and medicine. Japan was able to grow economically and become a leading country in manufacturing precisely because of the advanced knowledge and technology fostered by its excellent education system. Japanese schools focus not only on academic achievements but also on the development of human quality (JASSO, n.d.). Japan is known to have excellent universities, especially in the STEM fields, able to produce 29 Nobel laureates and 3 Fields medalists, more than any other Asian nations. However, there seems a global decline of Japan's university ranking.

Table 2. Ranking of Japan's Universities by Times Higher Education

	University	2011	2016		2020		2022	
				Int'l Stud (%)		Int'l Stud (%)		Int'l Stud (%)
G30	Tokyo	26	43	10%	36	12%	35	14%
	Kyoto	57	88	7%	65	9%	61	11%
	Osaka	130	251+	9%	301+	11%	301+	11%
	Kyushu		401+	8%	401+	13%	501+	14%
Non G30	Tokushima		601+	3%	1001+	3%	1201+	3%
	Tottori		601+	2%	1001+	2%	1201+	2%
	Ryukyus				1001+	2%	1201+	2%

Looking at the figures of national universities, in Table 2, Japan's university ranking in 2022 according to THE was generally downranked compared to 2011 (THE, 2021). Comparing the G30 and top global group and the non G30 group, the former seems to keep their ranks stable or even up during the past years, the latter seems much downranked. Regarding the proportion of international students, the G30 group has achieved significant growth during the last years, while the non-G30 group shows no improvement. Decrease in number of international students is typical for any non-G30 and non-top-global universities (Figure 3).

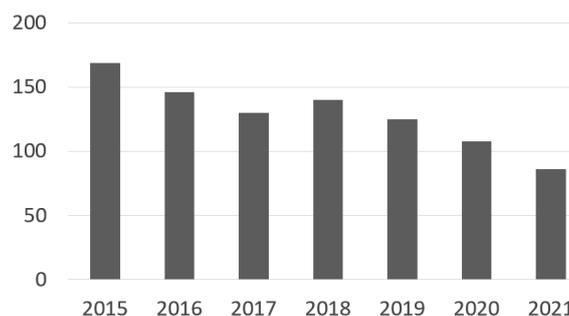


Figure 3. Number of International Students (Source: Kochi University)

However, a study reported that Chinese studying STEM in Japan rapidly increased until 2011, then this trend did slowdown due to the students have becoming more western-oriented (Futagami, 2016). In Japan, a phenomenon called east asianization (Figure 4) rapidly gained momentum in the latter half of the 1990s. Accepting more international students from developing countries to compensate for the decreasing Japanese students may serve to increase academic performance in the short term, but it is surely unsustainable in the long run (Arai, 2018).

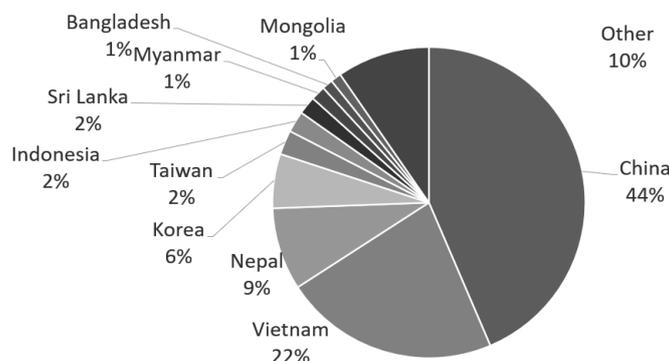


Figure 4. East Asianization of International Students (Source: JASSO 2021)

## Factor 2. Fascinating Culture, Language, and Nature

Japan, as a country itself is very popular abroad. attractive to foreigners. There are almost four million learners of Japanese language worldwide, but only a quarter of them are from outside Asia. According to a survey data, people are learning Japanese because they are interested in manga, anime, J-Pop, etc. (54.0%), in history, literature, (49.7%), in future employment (42.3%), in study in Japan (34.0%), in culture (32.4%), in sightseeing (28.6%), in taking examinations (26.6%) (Japan Foundation, 2012). Among international students enrolled in Japan, it has positive images of easy life, anime, Sakura, beautiful streets, politeness, cute stuff, Akihabara (Yang & Yasuhisa, 2019). Japanese people became more active in perceiving multicultural issues, cross-cultural understanding. E.g., in Tokushima prefecture, residents are active in leaning diversified foreign languages and cultures, while providing community support to foreigners in Japanese language, culture exchange, disaster, employment, etc. (Tran, 2020; Tran & Matsuura, 2020).

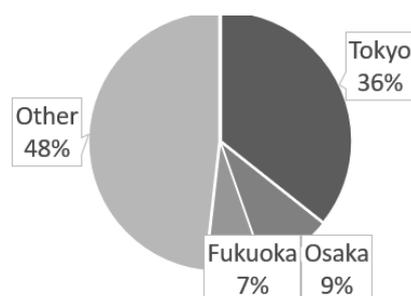


Figure 5. Urbanization of International Students (Source: JASSO 2021)

Figure 5 shows location of international students as a clear urban trend could be observed. Rural areas in Japan are rich of uniqueness of nature and tradition but face declining population. International students could be seen as resources to revitalize the locality. Studies have shown that foreign residents enjoy more human relations and Japanese learning in rural areas, however there are also inconveniences such as transportation (Fukada, 2019).

### Factor 3. Affordable Cost, Part-Time Job, and Employment

A boom of Japan investment and Japan-owned companies has led to higher chance for employing student-returnees with higher salaries (Hirasawa, 2019). The open economic market in foreign countries brings better economic conditions for returnees. In short, from economic perspective, study abroad in Japan becomes more affordable while domestic education becomes more expensive may drive more students to choose study in Japan. About more than a decade ago, high living cost is the biggest challenge of privately funded students in Japan (Fujii & Masami, 2003). However, recently, a smaller number of international students perceived a high living cost, and economic situation of international students seems improved, as number of international students need counseling on financial problems is declining (Oka, 2018). It was reported that part-time job is a factor that attracts international students (Shizuka, 2015). Part-time job is the first experience of being worker a good opportunity for socialization to start thinking about the value and career of money, obligations, and responsibilities in society (Wakabayashi 2006). Students active in a part-time for more than two years have higher scores for social skills (Iseri, 2013) and higher career development (Sekiguchi, 2012). Part-time job activities are expected to promote the socialization of foreign students living in Japan, and at the same time, deepen their understanding of Japanese culture and enhance their Japanese-style interpersonal relationship abilities (Lin & Horiuchi, 2021). International students are 80% active, not only for income, but also for work experience & practicing Japanese, career development (Itoh & Hiruma, 2019) cultural understanding (Huang, 2018). Recently, problems related to part-time jobs decline and some privately students afford not work part-time. However, still some rely on part-time jobs for most living expenses (Oka, 2018).

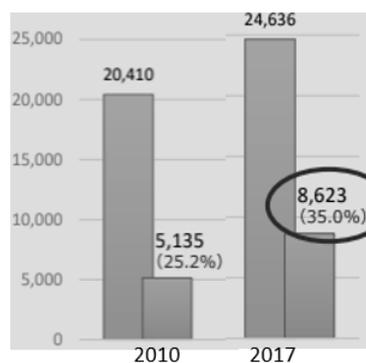


Figure 6. Employment Rate (Source: METI 2017 Foreign Student Career Survey)

Regarding job hunting, various measures are being implemented to ensure that international students can find employment in Japan. Since 2012, Immigration Bureau has implemented a points-based system to facilitate the immigration of highly skilled foreign professionals (Immigration Services Agency of Japan, 2012) which makes staying in Japan easier. Since 2016, the program for enhancing employment of international students has been approved by MEXT to be implemented in 12 universities, aiming at raising the employment rate in Japan from the current 30% to 50% (MEXT, 2017). Recently, the need for finding employment in Japan is very high among international students. In 2017, 63.6% of international students want to work in Japan, but only 30.1% found job (JASSO 2017). For job hunting, social support from local communities to international students has become an important factor for promoting job-seeking intention of international students. Studies have shown that who succeeded in employment had won the social support and they could do their job hunting similarly as Japanese students (Fujimoto et al., 2014). There is an increasing trend of job hunting in Japan as Figure 6 shows 35% of the respondents have found job in Japan in 2017 compared to 25.2% in 2010. However, most of the graduated students have found job in urban hubs such as Tokyo, Osaka, Kanagawa. Very few students successfully settled in rural areas. This fact shows is a clear disparity in destination of employment for international students.

#### Factor 4. Population Decline

Due to population decline, especially decline of the university-age population, since 1990s, Japanese higher education system has facing pressure to internationalize their operations (Yonezawa, 2019). Until now, even though the 18-year-old population has decreased, the college advancement rate has increased, and universities have been able to secure the number of students (Nakane, 2019). However, MEXT estimates that after 2018, the number enrollees will decline, regardless of increase in college advancement rate. In this situation, filling the gap of enrolment by recruiting more international students seems to become a challenge for Japan's HEIs soon.

#### Conclusion

Japan is a major host to the world's international student. This paper reviewed the pull factors that affect the inbound trends of international students. By examining related studies and literature, we demonstrated that international student inbound in Japan is strongly influenced by many pull factors. In this paper, we used evidence found in the literature to confirm the general pull factors, such as (i) world class education, (ii) fascinating culture, language, and nature; (iii) affordable cost, part-time job, and employment; (iv) population decline.

Regarding the world class education of Japan, literature has shown that this is a very strong pull factor that acts as a major national brand of Japan to attract international students into Japan. However, we also found some evidence of declining ranking and regional gap among top HEIs and non-top HEIs, as well as a trend of east asianization of Japan's science. Regarding Japanese culture, language, and nature as a pull factor, we found true evidence of the popularity of Japanese culture worldwide and among international students in Japan, and the sign of Japan to transform into multicultural society for regional revitalization, but again, here we found regional gap in the rural areas to make internationalization. Regarding affordable cost life in Japan, availability of part-time job, and employment possibilities, literature has shown that during the last decade, life in Japan has becoming more affordable, with plenty of part-time job and employment possibilities for international students. However, regional gap still exists, as most of the graduates have found job at big urban areas. Regarding population decline as a pull factor, there is no literature found to support this assumption so far, but this could become an indirect pull factor in the near future.

Our findings also include a literature review of policy-related pull factors and HEIs-related pull factors as specified by "300,000 International Students Plan", which could be seen as sub-national and institutional level pull factors and explain why students come to a specific institution or prefecture. For the length of the content, we will publish these findings in a separated publication.

In summary, in this study we could find the literature that supports the pull factors that are assumed to contribute to attracting international students to Japan. The trends and intensity of the pulling effect vary by time. There is a clear regional disparity between big urban areas and the other regions of Japan in terms of attractiveness to international students. These results show that there is an increasing trend for study in Japan pushed and pulled by multiple factors. These factors could influence the transition of mobility over time, including number of students, study destinations, career after graduation, which make impact to promote diversity and regional development of Japan.

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***Transformational Leadership in Changing Education Systems: Evolving Management Roles and Responsibilities in Educational Institutions***

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**Abstract**

This paper examines the effectiveness of transformational leadership in changing education systems and the rapidly evolving and expanding roles of educational leaders. Innovation, rather than the mere improvement of existing processes and structures, is one of the most important elements of an organization that a leader can help to promote. Whether it is a factory that produces tangible products or a learning organization involved in training individuals in a wide range of disciplines, leadership and management approaches that enhance innovation are of vital importance. Effective and enlightened leaders help organizations to improve and to evolve in innovative new ways (Mufeed, 2018). The traditional concept of leadership provides a rigid framework that may no longer be effective in an increasingly complex and interconnected international society. Effective educational leadership requires shared responsibility, advanced critical thinking skills, flexibility in decision-making processes, open channels of communication throughout an organization, and close collaboration with a wide range of stakeholders (Eliophotou-Menon & Ioannou, 2016). Transformational leadership, which was first developed in the private sector, is now being employed successfully in the management and rapid transformation of educational institutions.

Keywords: Transformational Leadership, Education Systems, Innovation, Management

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## Introduction

Transformational leadership, which first evolved in private companies, is now being used effectively by some educational leaders to improve and transform educational institutions and education systems to meet the complex, changing needs of students. In the current period of rapid social, economic, and technological change, organizations and education systems require flexible, innovative leadership that is capable of transforming current organizational cultures, structures, and practices (Mufeed, 2018). The roles and responsibilities of educational leaders are expanding and changing as a result of multiple, complex, and evolving factors in global society, the economy, technology, the environment, and other key areas. Economic and political pressures are forcing some schools to operate in a manner similar to private companies to reduce costs and to produce more measurable results (Onorato, 2013). School management practices are being influenced by the private sector. Many school leaders increasingly need more financial knowledge, business skills, and negotiating skills as a result of funding cuts (Miller, Lu, & Gearhart, 2020). Transformational school leaders may need to carefully evaluate and adopt some of the best practices of private companies to reduce costs.

Resilient organizations and educational institutions are capable of responding quickly and effectively to new needs and challenges in a complex, interconnected, and changing international environment. Transformational leaders need to foster and promote diversity and cross-cultural communication in increasingly multicultural and international organizations and educational institutions (Bonsu & Twum-Danso, 2018). Increased diversity can improve the resiliency of an organization by providing a greater range of opinions and experiences that can be applied to decision-making processes. The concept of continual innovation and the processes that support innovation need to be fostered and developed at all levels of a truly resilient organization (Horibe, 2003). Leaders need to be willing to change and be able to lead and inspire other stakeholders to accept a culture of change and to make substantial contributions to necessary changes in existing policies, structures, and practices.

In the traditional view of transactional leadership, the leader may often play a dominant central role in an organization and may even dictate instructions or commands in a seemingly logical and rational manner. The term leadership may create the image of a lone figure at the top of a rigid, inflexible hierarchy or out in front of a group of obedient subordinates and making many of the most important decisions for other stakeholders in an organization. In a transactional style of leadership concentrated at the top of a hierarchical organizational structure, there may be virtually no role for interactive debates or individual decisions or initiatives within an organization (Eliophotou-Menon & Ioannou, 2016). The higher one's official ranking in an organization, the more influence one may have. The traditional concept of leadership centered around one main leader or a relatively small group of key, senior decision-makers at the top of a rigid hierarchical structure provides a framework for management that may no longer be effective in an increasingly complex global society.

In sharp contrast to traditional leaders, skillful transformational leaders do not isolate themselves or rely mainly on advice from a small number of senior members of an organization. Transformational leaders are capable of being good followers when necessary and communicate frequently with all members of an organization and with stakeholders in the surrounding community (Katz & Hamam, 2018). Effective transformational leadership requires shared responsibility throughout an organization. A good leader must recognize the need for critical thinking and for completely open, ongoing dialogue on all issues in the

workplace. In addition, competent transformational leaders are sufficiently aware of the role of emotions in thinking and in decision-making processes. Effective leaders are sincere, respect other members, and are committed to the success of an organization (Bennett, 2019). Transformational leadership practices can help educational institutions and education systems employ necessary reforms and changes to adapt to a rapidly changing global society and economy. Organizations, companies, and educational institutions that are too hierarchical, too rigid, and too slow to change risk becoming irrelevant in the current era of unprecedented, accelerating change in technology, in society, and in the evolving, interconnected global economy.

### **Transformational Leadership Roles and Shared Responsibilities**

Effective and enlightened leaders help organizations to continually improve and to evolve in a variety of innovative new ways (Mufeed, 2018). In the past, some leaders of schools and companies may have chosen the direction of an organization with little or no substantial input from subordinates. Without giving it careful consideration or applying truly critical thinking to the concept of leadership, some teachers in various educational settings may still believe that leadership implies supreme authority and a superior position with unequal subordinates who are not fully qualified to lead an organization in any substantial way. However, one should not underestimate the importance of delegating authority and of promoting shared leadership throughout an organization or educational institution. In the case of educational institutions, community leaders may also be able to make valuable contributions to new projects, goals and objectives (Katz & Hamam, 2018). Effective educational leadership requires a high level of shared responsibility, advanced critical thinking skills, flexibility in decision-making processes, open channels of communication throughout an organization, and close collaboration with a wide range of stakeholders (Eliophotou-Menon & Ioannou, 2016). The ideal role of a skilled leader is to create the conditions in an organization that allow all its members and stakeholders to fully use their creative energies, to actively participate in changes, and to eagerly take a stake in management decisions and in the future success of an organization or school.

Resilient and successful organizations are capable of creating work environments which encourage the development of intrinsic motivation and self-motivation among the members and stakeholders. Effective transformational leaders give working teams or groups enough autonomy and freedom to make some mistakes within a reasonable limit. Leaders can promote strategic, mutually beneficial partnerships with a wide range of external stakeholders in the community (Kladifko, 2013). Learning teams can quickly and effectively manage and share resources, experience, and knowledge. Large contemporary organizations are far too complex for one single leader to do all the thinking and decision-making alone, and good leaders recognize the limitations of their own personal knowledge, experience, connections, and influence.

In companies and organizations today, innovation rather than the mere improvement of existing processes and structures is one of the most important things that a leader in an organization can help to promote. Whether it is a factory that produces various goods or a learning organization engaged in training individuals in many different disciplines, innovation and change are of vital importance to the success of an organization. The ability to transform an organization, helping it to grow and evolve quickly in completely new directions, should be a high priority for enlightened leaders and skillful, competent managers (Horibe, 2003). Effective transformational leaders encourage innovation and help to guide

necessary changes.

The members of an organization should be given opportunities to experiment with new ideas in order to encourage team leaders and other members to take some risks (Kozlov, 1989). The existing status quo and strict hierarchy in some large organizational cultures may discourage clear communication, trust, and openness between groups even within the same sections or departments. The rewards for taking a risk that proves successful may be extremely small in organizations with traditional management, while the potential punishments and negative consequences for any type of failure may be quite severe. Organizations should avoid having one single leader or manager judge a new idea and should encourage detailed feedback and participation in decision-making by all members (Vu, 2004). An organizational culture and decision-making processes benefit from diversity, multiple viewpoints and perspectives.

### **The Importance of Critical Thinking in Transformational Leadership**

Learning can be an interactive process between teachers and learners. Teachers and students can help each other to evaluate new ideas and concepts and to relate them to personal experience in order to construct new meanings. Teachers can use the classroom environment not only to transmit knowledge but also to reflect deeply on and to modify assumptions and beliefs (Stengel, 2001). A company or learning organization is also a place for leaders to experiment and to test new ideas and assumptions with the active cooperation of other members of an organization. An effective leader knows how to motivate people for a common purpose and for the benefit of all stakeholders. Good leaders are self-reflective and clearly understand the roles of cognitive processes and logic in their own thinking and daily decision-making processes.

Leaders should be sophisticated enough to avoid making faulty generalizations (Schwarze & Lape, 2001). Transformational leadership creates the conditions which allow members of an organization to make valuable contributions and to perform and to learn to the best of their abilities. Ongoing training in critical thinking skills is advisable for all members of an organization. The use of open-ended problems in group discussions can be an important part of ongoing employee training (McGraw, 2004). Members of an organization need support and encouragement from managers and leaders in order to continue to grow professionally.

### **The Role of Emotions and Intuition in Transformational Leadership**

Emotions may sometimes appear to be the opposite of reason and logic, but knowledgeable leaders need a deep understanding of the role that emotions and intuition can play in complex decision-making processes. Effective leaders must be willing to calmly and frequently question existing assumptions and practices, be open to new ideas, and be capable of reimagining and redesigning organizations (Ruggiero, 2004). Leadership requires a certain degree of emotional self-monitoring and self-control. A skillful leader is capable of understanding the emotional needs of other members of an organization, and knows that good listening skills are an essential part of successful interpersonal communication (Kirby & Goodpaster, 2002). Transformational leaders need to be able to listen carefully and frequently to members at all levels of an organization. Genuine sincerity is also vital when trying to persuade others to fundamentally change a point of view (Ruggiero, 2004). However, leaders and managers need to be cautious when transferring management and leadership techniques between different cultures. A gradual process of trial and error may be necessary when first attempting to transform the entrenched culture, management structures, and practices of a

large organization.

## **Conclusion**

In conclusion, in a transactional view of leadership, leaders may be privileged individuals at the top of a rigid hierarchy who make most of the key decisions for an organization by themselves or with a relatively small group of senior members of an organization. In contrast, effective transformational leadership is a highly interactive, dynamic, evolving process with shared responsibilities throughout an organization. In order to manage members effectively and to motivate them, a leader must be sincere and listen carefully, calmly and frequently to others (Bennett, 2019). Good leaders recognize that open, ongoing, constructive dialogue is extremely useful and that emotions and intuition may sometimes have an important role to play in the leadership and decision-making process. Transformational leadership in an educational institution is a continual, ongoing process which requires effective communication skills, a willingness to change, the delegation of responsibilities, and the active participation of all members of an organization and of multiple external stakeholders in the community (Eliophotou-Menon & Ioannou, 2016). Using transformational leadership, resilient organizations and educational institutions can foster a flexible and dynamic organizational culture which embraces and effectively manages continual organizational improvements and change in an increasingly complex global society.

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## *The Accessibility of Web-based Lessons During the Time of the COVID-19 Pandemic*

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### **Abstract**

In this age of content digitalization, equal access to web-based learning resources is important as it contributes to providing all students with same opportunities to pursue their learning and career goals. With the current circumstance, the outbreak of the Covid-19 pandemic has forced most governments in the world to temporarily close educational institutions of different levels, which is now influencing roughly 70% of the global learner population. Therefore, there has been an unprecedented worldwide shift from face-to-face to online modes of teaching and learning. At this stage, it is looking increasingly likely that the issue of web accessibility in online education is more crucial than ever. This paper reports on an analysis of a real online lesson for students who are doing their Master's degree at an Australian university. The analysis aims to describe the lesson that relies on a blend of text, audio-visual resources, links, and hyperlinks that usually poses certain obstacles related to perceiving and understanding the content to the students, especially those with vision and hearing disabilities. Then, it continues to analyze and evaluate the accessibility of the lesson using Web Content Accessibility Guidelines (WCAG) 2.1, which have been proposed by the World Wide Web Consortium (W3C). Some recommendations for improving the accessibility of the lesson have also been made to benefit and reach the widest audience.

Keywords: Accessibility, Disabilities, Web-based Lessons, Web Content Accessibility Guidelines (WCAG) 2.1, COVID-19

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## Introduction

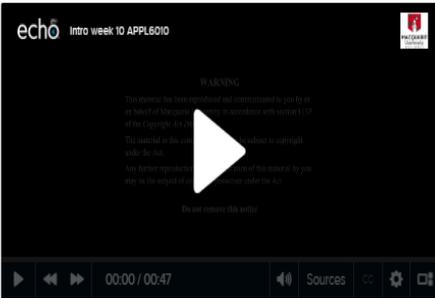
Web accessibility aims at creating a barrier-free online environment in which all users can be fully engaged regardless of their different backgrounds and levels of disabilities (Rao et al., 2015). When it comes to educational concerns, Kurt (2019, p. 207) takes the view that equality of access to the web and learning resources is of great significance in that it is considered to be a “non-negotiable requirement” that contributes to providing all students with same opportunities for pursuing their learning and career goals. As regards the current circumstance, the outbreak of the COVID-19 pandemic across 188 countries (the British Broadcasting Corporation News, 2020) has forced most governments in the world to temporarily close educational institutions of different levels, which is now influencing roughly 70% of the global learner population (UNESCO, 2020). As a result, there has been an unprecedented worldwide shift from face-to-face to online modes of teaching and learning. At this stage, it is looking increasingly likely that the issue of web accessibility in online education is more crucial than ever. Therefore, this paper aims to describe an online lesson that relies on a blend of text, audio-visual resources, links, and hyperlinks that usually poses certain obstacles related to perceiving and understanding the content to the students, especially those with vision and hearing disabilities (Pearson & Koppi, 2002). Then, it continues to analyze and evaluate the accessibility of the lesson using WCAG 2.1, which have been proposed by W3C. The paper ends with some recommendations for improving the accessibility of the lesson so that it can benefit and reach the widest audience.

## Brief Description of the Lesson

The lesson covered in this analysis is *Topic 10: Text-based Syllabus Design* (see Figure 1), which was selected randomly for analysis. Firstly, it belongs to the unit of *APPL6010 – Planning and Programming in TESOL* (see Figure 2), which covers fundamental aspects of language teaching: various English language teaching (ELT) contexts where TESOL is conducted, different methods and approaches to ELT, and TESOL lesson planning and testing and assessment practices. Next, the lesson is particularly aimed at Macquarie University students, including the author, who are doing their Master’s degree in Applied Linguistics and TESOL and have some relevant prior qualifications or working experience in areas of linguistics, language teaching, education, and whose English should be at advanced levels (academic IELTS of 6.5 or equivalent) (Macquarie University, n.d.). Finally, this lesson offers the students a chance to learn what “approach” and “design” are, explore genre-based approach that provides a specific way of organizing teaching content, and adopt the teaching-learning cycle to analyze a given lesson plan, and practise developing lesson plans that are appropriate for certain groups of English learners.

## Topic 10: Text-based Syllabus Design

### Introduction



Script: Hello. In this week, our focus moves on to a specific way of organising lesson content: the text-based syllabus and genre-based teaching. We are going to look at how this new approach fits into the approaches we have seen before; for example how it compares to Audiolingualism or Communicative Language Teaching. This kind of lesson planning – and you will see later, unit planning as well – provides systematic support as it guides students through the stages of learning. Your tasks include covering the set readings, watching and analysing a video and analysing a lesson plan.

Text-based syllabus design is based on an approach (Genre-based approach) that:

- Teaches explicitly about the structures and grammatical features that are inherent to language use in a certain context (this is a 'text')
- Links spoken and written texts to a cultural context
- Designs units of work that develops skills with relation to texts
- Provides guided practice to students while the move through the stages

In this topic, the following order of activities has been set:

1. Do the reading
2. Cover the lecture materials (video, or slides with lecture notes)
3. Complete the lecture tasks and post your answers in the Forum on the second page of the Topic 10 tasks activity

Unit outcome 5: Develop lesson plans appropriate for specific groups of language learners

Figure 1. Interface of the Lesson of Topic 10: Text-based Syllabus Design.

## APPL6010 Planning and Programming in TESOL

My home / Units / APPL6010\_FHFYR\_2020\_ALL\_U

Announcements  
9 unread posts



Welcome APPL6010 students!

This is your online home for the unit **Planning and Programming in TESOL**. Here you can find everything you need to work through this unit, as well as additional resources for second language teaching. A short video of the overview of the unit can be found in the **Key information about the unit** section below.

Figure 2. Interface of the Unit of APPL6010 – Planning and Programming in TESOL.

### Short Overview of WCAG 2.1

In “intra-period digital pedagogy” (Crawford et al., 2020, p. 1) response to the COVID-19 pandemic, the lesson of *Topic 10: Text-based Syllabus Design* has been delivered fully online

via iLearn, the online learning environment of Macquarie University, since March 30<sup>th</sup> 2020 (Macquarie University, 2020). Therefore, it is practical to utilize WCAG 2.1, which is a set of design principles, guidelines, success criteria (SC) for checking web accessibility, and techniques for creating and making web-based content more accessible and usable to all users (W3C, 2018), to analyze and evaluate the lesson. According to White (2019), the W3C, which is an organization responsible for web technology regulation and evolution, has developed and published three versions of their guidelines that have proven invaluable and attained wide recognition among specialists. In 1999, the W3C launched the first version that was WCAG 1.0, which dealt with simplest websites containing text (Murley, 2008). However, due to the advent of multimedia and diverse access platforms, in 2008, WCAG 2.0 was released to create accessible web content for people with disabilities related to sight, hearing, cognition or mobility (Ochoa & Crovi, 2019). Eventually, WCAG 2.1, the latest version at the time of conducting the analysis, was published in 2018 with a view to satisfying further requirements of people who suffer from low vision and rely heavily on mobile and touch-based devices (White, 2019). In general, these guidelines are categorized into four central principles of accessibility as shown in Table 1.

**Table 1.** Web Content Accessibility Guidelines 2.1.

<b>Web Content Accessibility Guidelines 2.1</b>				
<b>No.</b>	<b>Principle</b>	<b>Guideline</b>	<b>SC</b>	<b>Intent</b>
<b>1</b>	<b>Perceivable</b>	Text alternatives	1	Provide text alternatives for any non-text content
		Time-based media	9	Provide captions and alternatives for audio-visual content
		Adaptable	6	Create content that can be adaptable or presented in different ways (simpler layout) without any information loss
		Distinguishable	13	Make content easy to see and hear by using appropriate contrast
<b>2</b>	<b>Operable</b>	Keyboard accessible	4	Help users interact with content via a keyboard
		Enough time	6	Offer users enough time to read and use content
		Seizures and physical reactions	3	Do not create content that causes seizures
		Navigable	10	Help users navigate and find content with ease
		Input modalities	6	Help users operate functionality through various inputs beyond keyboard
<b>3</b>	<b>Understandable</b>	Readable	6	Make text content readable and understandable
		Predictable	5	Make content operate in predictable ways
		Input assistance	6	Help users avoid and correct mistakes
<b>4</b>	<b>Robust</b>	Compatible	3	Make content compatible with various access platforms and users

### Accessibility of the Lesson

As mentioned in the previous part, WCAG 2.1 is developed and utilized widely among practitioners, hence it consists of many technical terms related to computer science, information technology and code writing. Although the current analysis of the lesson is conducted in accordance with WCAG 2.1, particularly the four key principles, it is largely based on some success criteria that sound more familiar to the general public and do not require

much specialist knowledge instead of covering all of the success criteria included in WCAG 2.1. Due to the limited space, only significant results are presented in the subsequent parts. However, the complete analysis and results can be found in the Appendix. There will not be grades of ‘Pass’ and ‘Fail’ that are suggested by W3C (2018). Instead, the analysis aims to show the positive aspects of the lesson and indicate room for any improvement.

## 1. Perceivable

In general, the lesson is adaptable and distinguishable in that it ensures the students can see, recognize, or hear the lesson content. The adaptability of the lesson is realized by a meaningful sequence that offers the students a sense of smooth and effective organization. In fact, the lesson is structured into four main parts that are introduction, reading lists, lecture materials and learning tasks. Besides, this sequence is consistent with the lecturer’s instruction in the introduction part and can be observed in the other topics in the unit, which aids both the lesson and unit in making logical sense (see Figure 3). Next, the lesson is distinguishable with regard to proper use of color and contrast, effective visual presentations, and text resizing. Firstly, red is consistently employed to signal all the links to lecture materials. In addition, text is written in black against a white background, which is proven to be adequate contrast that helps people with moderately low vision and color deficiencies (W3C, 2018). Secondly, the lesson is presented in such a visual way that makes the lesson legible. More precisely, texts are arranged in chunks according to their role and content, which enables the students to scan the lesson without difficulty. White space is utilized successfully to create clear grouping and indicate where each chunk of text begins and ends (see Figure 1). Moreover, salient information is presented in italic and bold type and larger sizes (headings). Also, the choice of font contributes greatly to the perceivability of the lesson. The observation is that text is written in the San Serif font like Arial, Calibri and Helvetica, which greatly contributes to more efficient reading and less consumption of readers’ limited attention span, rather than the Serif font, which contains “extraneous decorative elements” (Tetlan & Marschalek, 2016, p. 77). Finally, when the lesson is resized up to 200%, there is no information loss or truncated, hidden content, which means that the students are not required to scroll horizontally to read a text line on a full screen window (see Figure 4).

In this topic, the following order of activities has been set:

1. Do the reading
2. Cover the lecture materials (video, or slides with lecture notes)
3. Complete the lecture tasks and post your answers in the Forum on the second page of the Topic 10 tasks activity

Unit outcome 5: Develop lesson plans appropriate for specific groups of language learners

 **Reading**

*Available in Leganto*

**Set reading:**

Feez, S (1998) *Text-based syllabus design*. NCELTR: Sydney. **Chapter 2** Implementing a text-based syllabus

**Useful reading**

Burns, A (2012) Text-based teaching. In Burns, A & Richards, JC (Eds) *The Cambridge guide to pedagogy and practice in second language teaching*, CUP. pp140-148.

 **Lecture slides, Lecture notes**

You can find the **PowerPoint slides** used in the Lecture here along with the **Lecture notes**, which give a more complete explanation of the points you can find on the slides. This is a **handout of the slides**, which is useful for note taking.

Figure 3. The Structure of the Lesson.

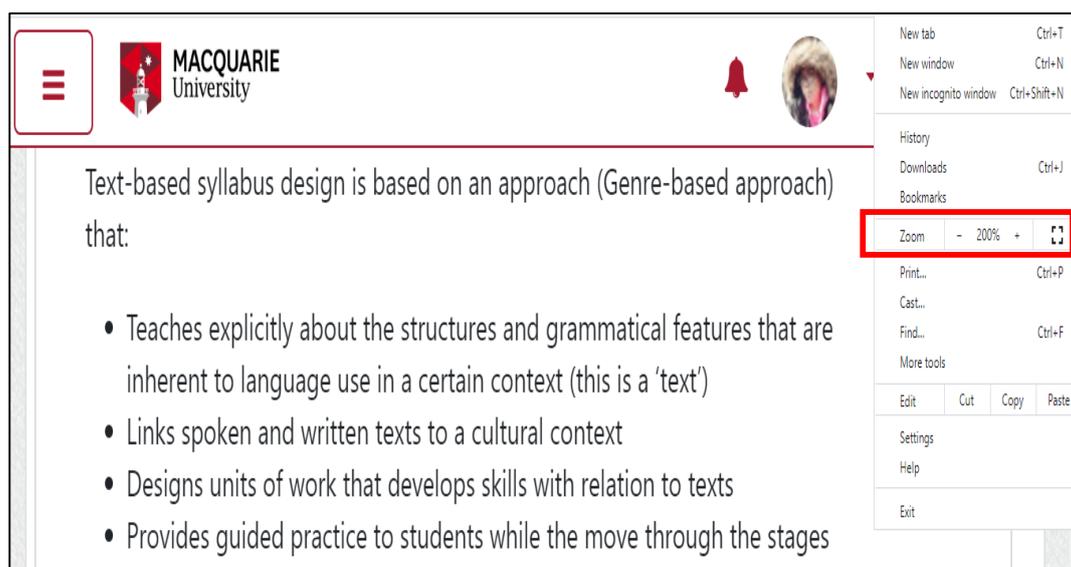


Figure 4. The Interface of the Lesson When Resized up to 200%.

## 2. Operable

The online lesson is operable in that the students can use a keyboard to operate the lesson, re-authenticate, easily navigate within the lesson, and avoid seizures. To begin with, keyboard control is believed to be one of the most important success criteria and come into major focus of web developers (W3C, 2018). In fact, the students can employ 'Tab' and 'Enter' or the spacebar to move between and interact with the interactive elements of the lesson like the drop-down list or play-video buttons, respectively. Furthermore, there is no keyboard trap in that the students can escape an interactive element like the introduction video without resorting to a mouse via pressing 'Shift' and 'Tab' simultaneously. Secondly, the lesson sometimes expires due to student inactivity. However, the students can continue the learning without any loss of data after re-authenticating. A good example is Leganto, an online reading resource. When the students are deeply engaged in reading the materials and remain inactive in the platform for roughly one hour, their session expires. In this case, there is a message box appearing on the screen and requiring them to re-authenticate to continue (see Figure 5). Next, the lesson is navigable in that it has a meaningful title, and descriptive headings and labels that reflect their content. Hence, the students can find the content easily without visual reference and better locate themselves within the lesson. Additionally, inside the part of learning tasks that contain several true/false questions and a forum is the table of contents that assists the students in easily navigating between smaller sections (see Figure 6). Lastly, owing to the absence of flashes, animations, advertisements, and auto-playing audios or videos in the lesson, the students are not exposed to any seizures and physical reactions, which results in better learning experience.

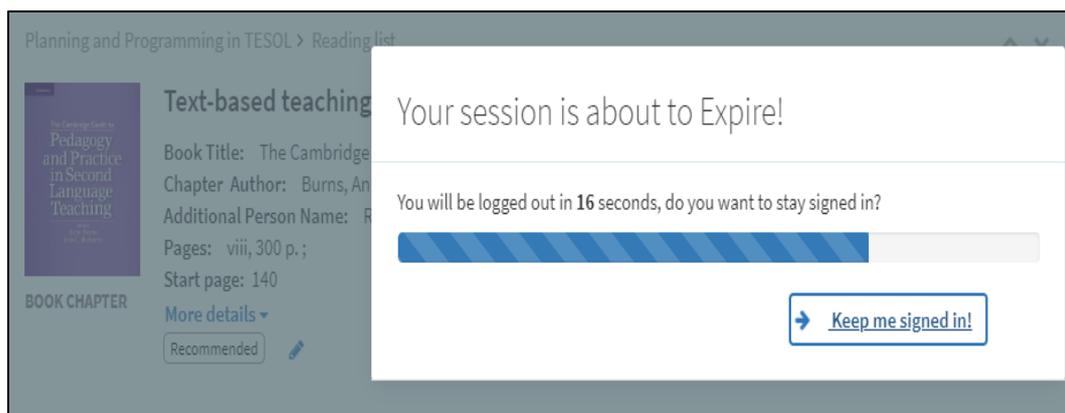


Figure 5. A Message Informing the Students of Session Expiring.

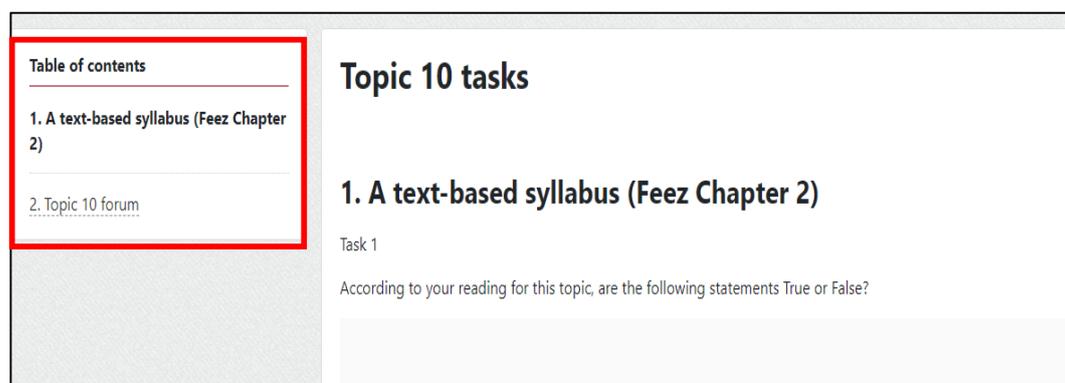


Figure 6. The Table of Contents in Topic 10 Tasks.

### 3. Understandable

The understandability of the lesson is realized through the use of plain English, consistent identification, and input assistance. Firstly, it is clear that the default language used in the lesson is plain English that features short sentences and paragraphs, clear chunks of text and adequate white space, which helps every user read and understand content quickly and easily (Centre for Inclusive Design, 2020) (see Figure 7). In addition, there is almost an absence of unusual and restricted ways of using words, except for some jargon such as ‘behaviorism’ and ‘constructivism’ (in the lecture slides), abbreviations like ‘TESOL’ and ‘ELT’ (in the lecture notes). Nevertheless, the jargon and abbreviations do not cause much obscurity because the audience of the lesson is graduate students who have specialist knowledge. Secondly, there is consistent identification with the same lesson structure and design of headings (a symbol of a book indicating the reading lists) throughout the whole unit. Therefore, this practice makes it easy for the students to follow the lesson and predict the content of each part. Finally, the lesson aids the students in providing input via error identification. For instance, when the students enter an incorrect password, there will be a message appearing and informing them of the error (see Figure 8).

*Script:* Hello. In this week, our focus moves on to a specific way of organising lesson content: the text-based syllabus and genre-based teaching. We are going to look at how this new approach fits into the approaches we have seen before; for example how it compares to Audiolingualism or Communicative Language Teaching. This kind of lesson planning – and you will see later, unit planning as well – provides systematic support as it guides students through the stages of learning. Your tasks include covering the set readings, watching and analysing a video and analysing a lesson plan.

Text-based syllabus design is based on an approach (Genre-based approach) that:

- Teaches explicitly about the structures and grammatical features that are inherent to language use in a certain context (this is a 'text')
- Links spoken and written texts to a cultural context
- Designs units of work that develops skills with relation to texts
- Provides guided practice to students while the move through the stages

In this topic, the following order of activities has been set:

1. Do the reading
2. Cover the lecture materials (video, or slides with lecture notes)
3. Complete the lecture tasks and post your answers in the Forum on the second page of the Topic 10 tasks activity

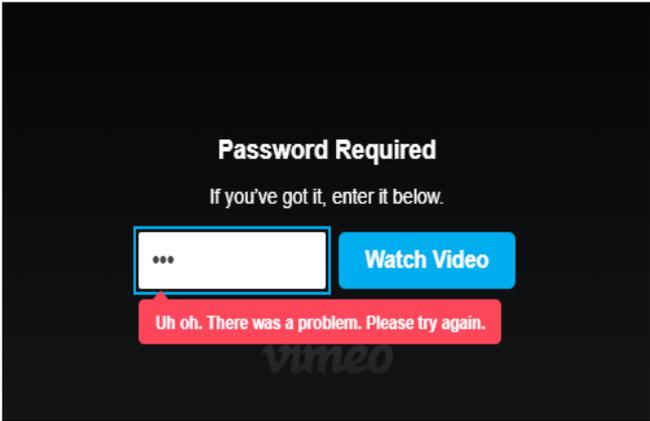
Unit outcome 5: Develop lesson plans appropriate for specific groups of language learners

Figure 7. An Example of Using Plain English in the Lesson.

 **VIDEO**

As part of your lecture tasks, complete the worksheet that you have started filling in (Topic 4). **Post your answers in the Topic 10 tasks forum, please.**

**mq1234**



An example of a teacher implementing the Teaching/Learning Cycle in an Australian primary classroom.

Figure 8. A Message Informing the Student of the Error.

#### 4. Robust

The robustness of the lesson is demonstrated by both interface components that have compatible name, role, and value and access stability across various devices. First, an object needs to have a name or label. The role and value provide users with information about how the object functions and what its state is, respectively (W3C, 2018). In the case of this lesson, the success criterion of name, role, value can be applicable to the button and links. For example, the name is ‘Topic 10: Text-based Syllabus Design’; the role is a button and the value is ‘collapsed’ but ‘not clicked’ (see Figure 9). These interpretations tend to remain compatible among a wide range of students. Second, the lesson can be reliably operated across various devices like laptops, tablets, and mobile phones. Despite some minor changes in the interface, the button and links are still in good size and function well when clicked on.

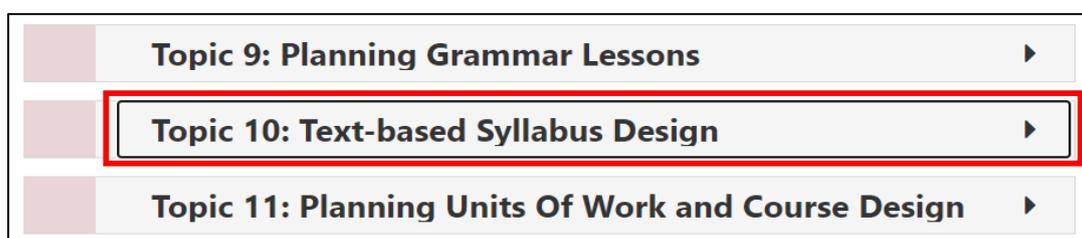


Figure 9. The Name, Role, Value Of The Button Topic 10: Text-Based Syllabus Design.

#### Recommendations

As far as accessibility is concerned, despite the above-mentioned success in helping the students participate actively in the online space, there are three aspects that need to be considered to make the lesson more usable and accessible to the students in terms of alternative formats of content and organizational issues. A brief summary of the recommendations can be found in Table 2.

**Table 2.** Recommendations for Improving the Accessibility of the Lesson.

Principle	Guideline	Recommendation
Perceivable	Text alternatives	- Provide short descriptions reflecting what is seen for pictures, diagrams, and tables in the lecture slides.
	Time-based media	- Provide a downloadable or accessible transcript with the pre-recorded lecture and the video. - Use tools like YouTube, Apple Clips and Amara to generate captions.
	Adaptable	- Organize the reading materials into different folders based on the topics in Leganto.
Operable	Navigable	- Provide links next to the reading materials.
Robust	Compatible	- Create materials in both Word and PDF formats.

Firstly, Kurt (2019) believes that educational content that is presented visually, orally, and textually can enhance accessibility in that the students have the opportunity to select the format that is the most accessible to them. However, apart from the introduction video accompanied by a script (see Figure 10), the pre-recorded lecture and the teaching-learning cycle video do not have any captions or scripts. Moreover, no description accompanies pictures and diagrams used in the lecture slides. These practices pose barriers to students with sensory and cognitive disabilities (Kurt, 2019). In other words, they may not see or hear what is presented. To address

these issues, it is suggested that the lecturer should provide a downloadable or accessible transcript with the pre-recorded lecture and the video (Sokolik, 2018). Additionally, there are useful tools that generate captions for uploaded videos, three of which are YouTube, Apple Clips and Amara (Centre for Inclusive Design, 2020). As for pictures, diagrams and tables, short descriptions reflecting what is seen should be included.

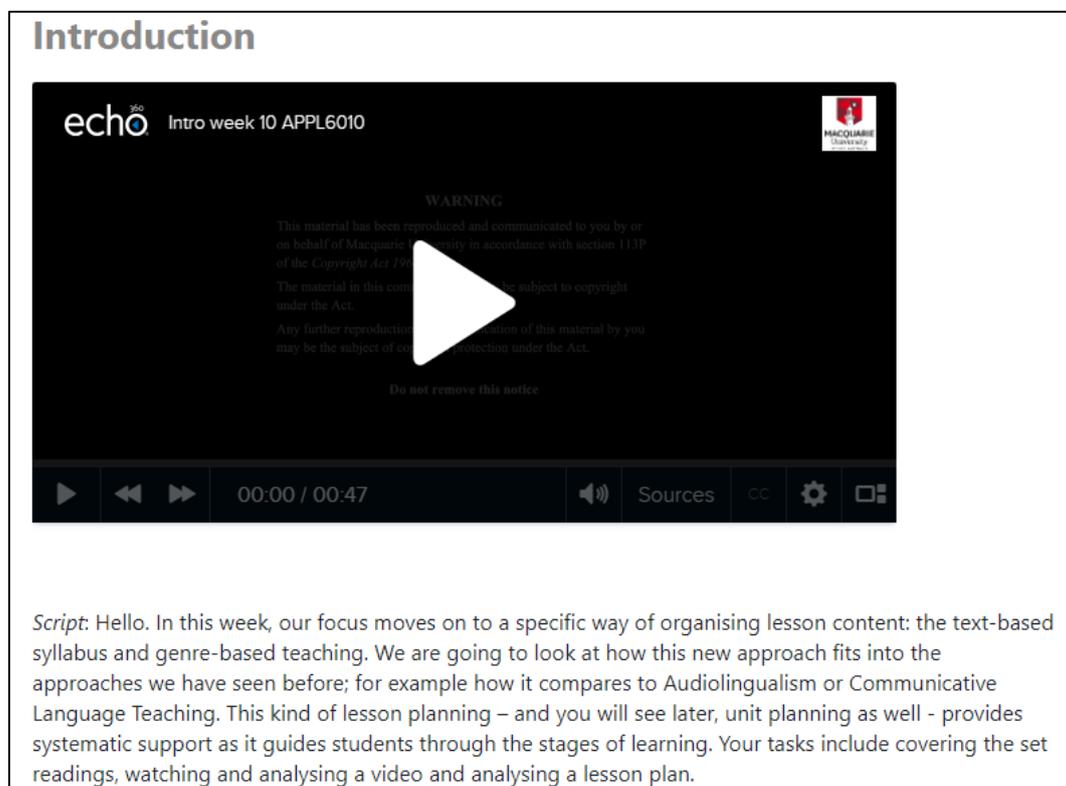


Figure 10. A Script Accompanies the Introduction Video.

Secondly, the observation is that most lecture materials are in form of PDFs that cannot always be compatible with screen reading software, which is a disadvantage for students with vision impairments (Pearson & Koppi, 2002). Therefore, it is advisable to create downloadable materials in both Word and PDF formats. Finally, regarding the reading list, there should be a link to the suggested reading under each item so that the students can gain direct access to the sources (see Figure 11). Moreover, reading materials in Leganto should be organized into different sections or folders so that the students can easily find what they have to read for each topic (see Figure 12). For example, all the reading needed for topic 10 can be found in the section titled Topic 10: Text-based Syllabus Design.

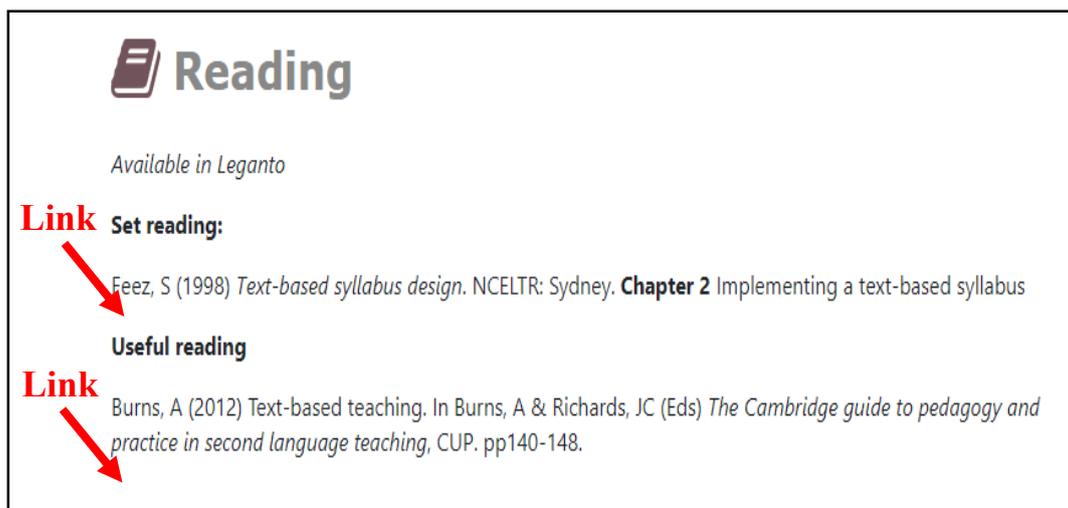


Figure 11. Example of How to Add Links to the Reading Materials.



Figure 12. The Interface of Leganto.

## Conclusion

The goal of this paper is to critically analyze the accessibility of the lesson *Topic 10: Text-based Syllabus Design* in the unit of *APPL6010 – Planning and Programming in TESOL* in accordance with WCAG 2.1. The results indicate that the lesson in general is perceivable, operable, understandable, and robust. The greatest strengths of the lesson include using a meaningful sequence to organize the teaching content, employing colors and white space properly to create sufficient contrast, and featuring plain English to aid the students' comprehension. Nevertheless, there are some aspects to which the lecturer needs to pay attention with the aim of improving the accessibility of the lesson. Practices like providing brief descriptions for pictures and tables, creating captions for prerecorded lectures, organizing the reading materials into folders are believed to be advantageous to students with hearing or visual impairments. This analysis may be relatively subjective due to reliance on the author's perception and interpretation of WCAG 2.1. However, it can be useful for the lecturer or lesson designers to refer to the analysis as a reference with a view to examining and enhancing the accessibility of the lesson for later use.

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## Appendice

### Complete WCAG 2.1 Analysis and Results

Topic 10: Text-based Syllabus Design					
Principle	Criteria	Not applicable	Good	Not good	Explanation
<b>PERCEIVABLE</b>	<b>1.1. Text alternatives</b>				
	1.1.1. Non-text content			√	No descriptions for images and diagrams used in the lecture slides
	<b>1.2. Time-based media</b>				
	1.2.1. Audio-only and video-only (Pre-recorded)	√			No audio-only and video-only resources
	1.2.2. Captions (Pre-recorded)			√	No captions available for the pre-recorded lecture and the video, except the script for the introduction video
	1.2.3. Audio description or Media Alternative (Pre-recorded)	√			No resources of these kinds found
	1.2.4. Captions (Live)				
	1.2.5. Audio Description (Pre-recorded)				
	1.2.6. Sign language (Pre-recorded)				
	1.2.7. Extended audio description (Pre-recorded)				
	1.2.8. Media alternative (Pre-recorded)				
	1.2.9. Audio-only (Live)				
	<b>1.3. Adaptable</b>				
	1.3.1. Info and relationships	√			Technically related
	1.3.2. Meaningful sequence		√		The lesson structure consistent with the lecturer's instruction

	1.3.3. Sensory Characteristics	√			No resources of this kind found
	1.3.4. Orientation				Technically related
	1.3.5. Identify Input Purpose	√			
	1.3.6. Identify Purpose				
	<b>1.4. Distinguishable</b>	<b>Not applicable</b>	<b>Good</b>	<b>Not good</b>	<b>Explanation</b>
	1.4.1. Use of color		√		Red indicates links
	1.4.2. Audio control	√			No automatically playing audio
	1.4.3. Contrast (Minimum)		√		Black words presented on a white background
	1.4.4. Resize text		√		No information loss when resized up to 200%
	1.4.5. Images of text	√			No resources of this kind found
	1.4.6. Contrast (Enhanced)	√			Technically related
	1.4.7. Low or no background audio	√			No resources of this kind found
	1.4.8. Visual Presentation		√		Clear chunks of text, italic and bold type for important information, white space
	1.4.9. Images of text (No exception)	√			No resources of this kind found
	1.4.10. Reflow				No resources of these kinds found
	1.4.11. Non-text contrast	√			
	1.4.12. Text spacing	√			Small web page not containing many long texts
	1.4.13. Content on Hover or Focus	√			Technically related
<b>OPERABLE</b>	<b>2.1. Keyboard accessible</b>				
	2.1.1. Keyboard				Use keyboard to control interactive elements
	2.1.2. No keyboard trap		√		
	2.1.3. Keyboard (No exception)	√			Technically related

2.1.4. Character key shortcuts				
<b>2.2. Enough time</b>				
2.2.1. Timing Adjustable	√			No resources of this kind found
2.2.2. Pause, stop, hide	√			No moving, blinking, scrolling information
2.2.3. No timing	√			No tests or games with a time limit
2.2.4. Interruptions	√			No updates and alerts
2.2.5. Re-authenticating		√		No information loss after re-authenticating
2.2.6. Timeouts				
<b>2.3. Seizures and physical reactions</b>	<b>Not applicable</b>	<b>Good</b>	<b>Not good</b>	<b>Explanation</b>
2.3.1. Three flashes or below threshold		√		No flashes, animation, advertisements
2.3.2. Three Flashes				
2.3.3. Animation from interactions				
<b>2.4. Navigable</b>				
2.4.1. Bypass blocks	√			Small web page
2.4.2. Page titled		√		Clear page title reflecting the content
2.4.3. Focus order		√		Focus moves from left to right, top to down when pressing 'Tab'
2.4.4. Link purpose (In context)		√		Make contextual sense, describe its purpose
2.4.5. Multiple ways	√			Small web page, most content included in one web page
2.4.6. Headings and labels		√		Descriptive, easy to find content without visual reference
2.4.7. Focus visible		√		Clear borders around focus when it moves from left to right, top to down

	2.4.8. Location	√			Small web page, most content included in one web page
	2.4.9. Link purpose (Link only)		√		Make sense without context
	2.4.10. Section headings	√			Small web page, most content included in one web page
	<b>2.5. Input modalities</b>				
	2.5.1. Pointer gestures	√			Technically related
	2.5.2. Pointer cancellation				
	2.5.3. Label in name				
	2.5.4. Motion actuation				
	2.5.5. Target size				
	2.5.6. Concurrent input mechanisms				
<b>UNDERSTANDABLE</b>	<b>3.1. Readable</b>	<b>Not applicable</b>	<b>Good</b>	<b>Not good</b>	<b>Explanation</b>
	3.1.1. Language of page		√		Plain English is the default language
	3.1.2. Language of parts	√			No words borrowed from other languages
	3.1.3. Unusual words		√		No idioms and jargon
	3.1.4. Abbreviations		√		Almost no abbreviations, except some common ones like TESOL, ELT
	3.1.5. Reading Level	√			Content targets only TESOL and Applied Linguistics students
	3.1.6. Pronunciation	√			No resources of this kind
	<b>3.2. Predictable</b>				
	3.2.1. On focus	√			Technically related
	3.2.2. On input				
	3.2.3. Consistent navigation	√			Small web page, content in one page

	3.2.4. Consistent identification		√		Consistent design throughout the unit and the lesson
	3.2.5. Change on request	√			Technically related
	<b>3.3. Input assistance</b>				
	3.3.1. Error Identification		√		Message appears on the screen when error occurs
	3.3.2. Labels or instructions		√		Instruct the students to enter the password to watch the video
	3.3.3. Error suggestion			√	No suggestion found
	3.3.4. Error prevention	√			Applicable to legal, financial data
	3.3.5. Help	√			No links to hints or instructions
	3.3.6. Error prevention (All)	√			Students are not required to complete any form
<b>ROBUST</b>	<b>4.1. Compatible</b>	<b>Not applicable</b>	<b>Good</b>	<b>Not good</b>	<b>Explanation</b>
	4.1.1. Parsing	√			Technically related
	4.1.2. Name, role, value		√		Compatible name, role, value among users; stability across platforms
	4.1.3. Status messages	√			Technically related



## *The Use of Different Strategies by Writers in Integrated Writing Assessment*

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Official Conference Proceedings

### **Abstract**

In recent years, there has been an accelerating trend towards using integrated writing tasks (IWT) in second language (L2) writing assessment settings, which can be attributed to their ability to “mirror” (Payant et al., 2019, p. 87) actual academic practices that require students’ comprehension and integration of source-based ideas into the production of written compositions. Nevertheless, Uludag et al. (2019) are of the opinion that these tasks present writers, especially those who are inexperienced, with certain problems associated with plagiarism and poor use of source ideas that result in disappointing test scores. In this sense, it is of practical significance to gain deeper insights into the nature of IWT and various strategies employed by proficient writers to assist not only novice writers in improving their writing performance and academic achievement but also inexperienced teachers in coming up with more effective instructional methods. This literature review is conducted to provide a short overview on IWT regarding definitions, test construct, benefits and challenges. Then, it continues to throw light on strategy use reported in previous research. The literature review ends with some conclusions and recommendations.

**Keywords:** Integrated Writing Tasks (IWT), Strategy Use, Second Language (L2), Source Text Use, Multiple-text Comprehension, Challenges

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## Introduction

Over the last decades, the integration of academic writing with other language skills such as reading and listening has continually attracted great attention of both test developers and teachers due to providing a more comprehensive picture of test takers' writing competence involving authenticity arguments (Plakans & Gebril, 2017). Nonetheless, IWT poses certain linguistic and cognitive challenges to writers, especially novice ones. More specifically, they have been experiencing difficulties related to inappropriate use of source ideas, simple paraphrases, verbatim copying, anxiety, or time management, which leads to unfavorable test results (Uludag et al., 2019). Therefore, this literature review is conducted to explore the nature of IWT, strategies and factors contributing to better writing performance with a view to helping inexperienced writers increase their band scores or become more successful in their academic lives. Relevant articles have been found in the databases of Linguistics and Language Behaviour Abstracts and Educational Resources Information Centre. The search key words include 'integrated writing tasks or assessment' and 'strategy use in IWT'. Furthermore, the criteria for selecting the articles are the recentness (from 2000 onwards) and the context (standardized tests or academic purposes).

## Definitions of IWT

The use of IWT has gained in popularity and been the focus of attention among researchers, test developers, and teachers (Kyle, 2020). Therefore, there have been many viewpoints on examining the notion of IWT. Ascencion Delaney (2008, p. 140) who takes an interest in integrated reading-writing tasks suggests that they are "instructional tasks" that are characteristic of the combination of reading and writing for different pedagogical reasons. In a similar vein, Plakans (2009) offers a broader definition by describing IWT as tasks that require other skills such as reading and listening to produce language in written forms. Unlike the aforementioned researchers, Cumming et al. (2005) discuss the concept in more detail and state they are tasks in which test takers have to use source ideas properly and meaningfully to generate coherent pieces of writing. More recently, Knoch and Sitajalabhorn (2013, p. 306) provided a more comprehensive explanation that depicts IWT as those that request writers to comprehend, select, synthesize, organize, integrate ideas from one or more "language-rich source texts" into writing performance. In brief, irrespective of how vague or precise the definitions may be, these researchers reveal much similarity in their attempt to account for the act of source-based writing with the inclusion of ideas that are appropriately used and successfully integrated.

## Test Construct

A better understanding of the initial construct underlying IWT is essential in that it helps to interpret test scores more accurately and provide a clearer account of test takers' behavior when completing the tasks (Knoch & Sitajalabhorn, 2013). Hence, scholars who aim at investigating the demands of IWT have devoted themselves to the cognitive processes that L2 writers, particularly those who are in tertiary contexts, undergo. For instance, Grabe (2003) shows that in order to accomplish source-based writing tasks, test takers have to decide what ideas to select from the texts, how to fit the ideas to the task requirements, how to represent and transform the information accurately and effectively. Furthermore, reflecting on the results of a study conducted to compare the performance of higher-level and lower-level writers, Plakans (2009) indicates that the abilities to select, organize, and connect ideas should be considered as academic writing constructs that enable valid interpretations of test scores. In general, previous

studies have proposed that the construct of IWT should feature major components such as selecting and synthesizing ideas from the source texts, making linguistic modifications, deciding on the writing structure, and connecting ideas from the sources with test takers' ideas.

### **Benefits of IWT**

Research has suggested that there are two major advantages of employing IWT with respect to authenticity and test fairness. Firstly, integrated assessment is believed to exert a positive washback effect on teaching and learning processes in various academic contexts in that it is capable of tackling the problems of authenticity and validity (Knoch & Sitajalabhorn, 2013). It can be argued that students at levels of higher education are supposed to think critically, discuss, and reflect on the materials to which they have listened or read to write their assignments. Therefore, integrated writing assessment is completely different from independent writing assessment in which students can generate their written products by relying on their background knowledge or personal experiences rather than ideas from the source texts (Payant et al., 2019). Secondly, in Plakans and Gebri's (2012) view, source-based writing enhances the fairness of tests in that it aids writers in dealing with unfamiliar topics by providing content and linguistic support. As a result, more test developers and teachers are in favor of IWT.

### **Challenges of IWT**

In spite of the abovementioned benefits of IWT, there are two considerable challenges concerning the use of source ideas and test construct identified in the current literature. To begin with, writers, particularly those who are novice, are reported to have trouble synthesizing and integrating source ideas effectively into their writing while attempting to avoid plagiarism (Uludag et al., 2019). More precisely, Keck (2006) shows that despite their awareness that textual borrowing without citing the sources is inappropriate, inexperienced writers tend to resort to word-for-word copying and simple paraphrasing and linguistic modifications at word levels that include the use of synonyms. What is more, Uludag et al. observe that novice writers appear to prevent themselves from incorporating source-based ideas in that they are afraid of misinterpreting or misrepresenting the authors' viewpoints, which leads to their ignorance of the use of source texts. Secondly, due to the test construct, integrated tasks require L2 writers to read and listen to the sources, select important information, and present their own stance, which is heavily reliant on their reading and listening comprehension abilities (Plakans, 2009). As a result, Payant et al. (2019) claim that they do not succeed in identifying salient information or concepts presented in the sources if their proficiency in listening and reading comprehension is at low levels.

### **Strategy use in IWT**

#### **1. Source Text Use**

A related line of research has examined the correlation between the use of source-based ideas and the quality of writing and reported that the inclusion of source text information plays a vital role in predicting the test scores. In a study carried out at a university in the USA, Yang and Plakans (2012) investigated the strategies employed by 161 L2 writers in a TOEFL iBT integrated reading-listening-writing task through questionnaires. The findings revealed that three key categories of strategies performed different functions throughout the process of completing the task. Discourse synthesis that was the selection, organization, and connection

of source text information had a positive influence on the overall test score, which was administered by self-regulation strategies. On the contrary, Yang and Plakans (2012, p. 80) stated that “test-wiseness” strategies such as verbatim copying, patchwriting, and memory-based or template-based writing impaired the writing quality in every aspect. Likewise, after conducting a study involving 415 secondary school students from Hong Kong who accomplished an integrated reading-listening-writing task, Cheong et al. (2019) emphasized the great significance of discourse synthesis strategies over the whole process and cautioned L2 writers to be careful about how they organized, selected, and synthesized ideas effectively owing to the complex nature of multiple-text documents. Interestingly, they reported that multiple-text comprehension supported and mediated the use of discourse synthesis in that it helped test takers identify and select key ideas and concepts. Approaching the issue from a different angle, Plakans and Gebril (2013) examined the use of source ideas in written compositions with respect to areas of importance, origin, and textual borrowing. They utilized 480 real TOEFL iBT writing performances that had been scored and regression analysis to answer the research questions. The results showed that the integration of important information and the use of the listening source text differentiated the test scores. Specifically, higher-level writers included more key ideas from the listening source while their peers relied largely on the reading source for content and verbatim copying. Similarly, expressing the same interest in source text use, Uludag et al. (2019) undertook an investigation into the relationship between the number of source ideas incorporated, the level of content accuracy and linguistic modifications, and the band scores of 111 Canadian undergraduate students. These researchers found that students who used ideas from the sources more frequently and represented or interpreted them accurately were more successful in eliciting their writing performances than those who did not. This echoed the results of the study of Gebril and Plakans (2016) who indicated that source-related and diverse vocabulary increased lexical diversity that bettered the writing scores. In addition, a higher degree of linguistic modifications was found to be a strong predictor of the writing quality, which was in line with Plakans and Gebril’s (2013) study. Examining the issue of linguistic modifications in detail, Kyle (2020) analyzed 480 TOEFL iBT essays and revealed that paraphrasing that involved semantic overlap or implicit reference to the source texts helped test takers perform better than word-level paraphrasing that used synonyms. Moreover, the explicit use of key content words that were unique to the listening source contributed to the test takers’ success.

## **2. Multiple-text Comprehension**

L2 writers’ comprehension of information across different source texts is considered to be an important skill in academic contexts in general and a first precondition for IWT in particular (Karimi, 2015). There has been a growing body of research that supports the contributing role of strategy use in multiple-text comprehension. The results reported by Plakans (2009) who conducted a study involving 12 L2 writers from the USA and an integrated reading-listening task showed that the participants employed various reading strategies over the whole process of completing the task. Five categories of strategies that were setting goals, cognitive processing, “global” strategies, metacognitive strategies, and “mining” strategies were identified and found to function in different stages (Plakans, 2009, pp. 257-258). For example, goal-setting and global strategies were primarily used in the early stages where writers read and comprehended the texts while the strategies of mining were dominant in the while-writing phase where writers integrated source information into their writing. Furthermore, high-scoring writers employed global strategies (skimming, asking questions, and summarizing) and mining strategies (scanning, paraphrasing, and rereading) more frequently and effectively than low-scoring writers. In a similar vein, Cheong et al. (2019) stated that taking summary notes and

inferential reasoning much contributed to the test takers' multiple-text comprehension. Noticeably, by comparing the performances of 415 secondary school students on a Chinese (L1) IWT and English (L2) IWT, they concluded that those who succeeded in the L1 task were more likely to produce better L2 written compositions. Besides, L1-L2 transfer took place in that skills to understand and incorporate source-based ideas into L1 writing were beneficial to performance in L2 writing.

### **3. Pre-writing Activities**

In the current literature, there have also been studies whose aim is to demonstrate the close relationship between pre-writing activities and test takers' writing performances. To begin with, in a study that involved 513 American university students, Joaquin, Kim, and Shin (2016) found that more than 50% of the participants made notes in the pre-writing stage. They were reported to employ a combination of strategies such as outlining, listing, and clustering, which helped them to outperform those who did not take notes. The second study that was carried out by Plakans and Gebril (2017) was also in favor of the significant role of pre-writing activities in assisting L2 writers to visualize their writing structure that balanced ideas from the reading and listening sources. Besides, features of better coherence and cohesion were included, which improved the quality of writing. More recently, Payant et al. (2019, p. 89) showed that pre-writing planning supported the whole process of writing in that it created "cognitive space" for selecting, developing, connecting, and reflecting on the source ideas, which resulted in anxiety minimization and higher band scores.

### **Conclusion**

All things considered, it can be seen that integrated writing assessment has enjoyed widespread popularity among test developers and teachers due to its ability to enhance authenticity and validity. On the other hand, challenges associated with source-based idea incorporation and multiple-text comprehension are facing L2 writers, especially those who are novice. Therefore, to be successful in IWT, writers are expected to pay attention to the active interaction with the source texts by employing various strategies such as discourse synthesis that includes selecting, organizing, and connecting ideas; comprehension strategies like scanning, skimming, and asking questions; and pre-writing planning. More importantly, it can be of practical significance to teachers who need to teach explicitly referencing skills to students to address the issues of plagiarism and avoid test-wiseness strategies, and instruct them to include more information from the listening source to produce more favorable test results.

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*Learning Effectiveness of Primary School Children in the Covid-19 Pandemic in Indonesia*

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**Abstract**

COVID-19 has an impact on the unpreparedness of the community and the government, especially in improving the quality of children's education. The increasing number of cases with rapid escalation has forced the government to take steps to reduce problems, especially the education of elementary school children. The Ministry of Indonesian Education issued Guidelines for Organizing Learning from Home in an Emergency Period for the Spread of COVID-19. This guide was unable to be implemented by both teachers, parents, and students, thus online learning is not effective. People faced social shock and stammer in this situation. This study aims to analyze the effectiveness of primary school children's learning during the COVID-19 pandemic. We used a mixed-method by collecting data in 24 provinces in Indonesia, with 1289 samples from primary school teachers, 2131 primary school children, 469 parents, and 45 local governments from the district and regional education officer. Data were analyzed using the Embedded Design model. The results showed that the online teaching and learning process was not optimal in improving children's learning achievement. Teachers are slow to respond to changes in learning, and parents have a considerable additional burden both materially and learning intensity for children. Another finding showed the number of children who were stressed due to being kept at home without meeting and hanging out with teachers and their friends. This finding has contributed to the Ministry of Education and Culture to develop various guidelines, especially for teachers, to improve online learning effectiveness.

Keywords: Education, Teachers, Children, Pandemic, COVID-19, Effectiveness

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## Introduction

Covid-19 has influenced on the children's education around the world. In 2020 when Indonesia experienced the first case of Covid-19, all were shocked and helpless. This is a result of the unpreparedness of the community and the government to face undesirable conditions. In March 2020, there were 25 recorded patients of Covid-19 with no children infected. Children have a strong innate immune response due to trained immunity and early control of infection. UNICEF reported that from the first cases of Covid-19 was detected in Indonesia to May 8, 2020, there were 12,776 cases and 930 deaths spreading in 34 provinces. This number and its case distribution are increasing over time all over Indonesia. A research conducted by Buonsenso et al. (2021) show that children with Covid-19 have a more chance of experiencing long Covid-19. They experience at least one symptom that persists after 120 days of being diagnosed with COVID-19. Symptoms such as fatigue, muscle and joint pain, headache, insomnia, breathing problems, and palpitations, have also been reported in adult survivors. This condition worries many parties because long Covid-19 will have a successive impact, namely the decline in the quality of life of children.

Covid-19 does not only affect health, but also affect all aspects of life, both socio- economic conditions and children's education. The government initially did not react, but after learning about the magnitude of the risk that would occur to children, the government made a policy to stop face-to-face meetings in schools. More than 1 billion children in the world are at risk of being left behind due to school closures aimed at containing the spread of Covid-19. The children were saved from being infected, but the problem was not simple because the learning process in the classroom had to be stopped.

The low number of Covid-19 cases that infected children has an impact on the government's slow response to children's learning policies. In March 2020, the policy of study at home was conducted by region based on the Covid-19 distribution zone where red and yellow colored-zones are a priority for distance learning. The President of the Republic of Indonesia instructed to carry out social distancing, namely to study and work at home. and to make physical distancing according to the WHO's (World Health Organization) advice. Furthermore, the stipulation of Government Regulation Number 21 of 2020 concerning Large-Scale Social Restrictions (PSBB) in the context of accelerating the handling of COVID-19 and Presidential Decree Number 11 of 2020 concerning Determination of Public Health Emergency of Coronavirus Disease 2019 and Presidential Decree Number 12 of 2020 concerning Determination of Non-Natural Disasters Spreading Coronavirus Disease 2019 (Covid-19) as a national disaster has not been enthusiastically welcomed by the public.

On March 24, 2020, the Minister of Education issued a Circular Letter of the Minister of Education and Culture Number 4 of 2020 concerning the Implementation of Educational Policies in the Emergency Period for the Spread of Coronavirus Disease (Covid-19). Another policy issued was about school operational assistance with the Regulation of the Minister of Education and Culture Number 8 of 2020 amended by Regulation of the Minister of Education and Culture number 19 of 2020 concerning Amendments to the Regulation of the Minister of Education and Culture Number 8 of 2020 concerning Technical Guidelines for Regular School Operational Assistance.

Initially, online learnings have not been fully responded in which teachers, parents and children are not ready to abruptly change the learning method. Many reasons are such as the

preparedness of information technology, adoption of new learning methods, teachers' readiness, and the state readiness to provide online education infrastructure.

A research conducted in Jakarta and Banten areas showed that only 14.78 percent of teachers were ready to conduct online learning, while 70.42 percent were less prepared, and the remaining 14.39 percent were ill-prepared. Readiness in conducting online learning is influenced by various factors such as the ineffectiveness of the training carried out in schools, teachers' confidence in expressing various emotions in virtual media and the limited infrastructure. This condition will likely to have a detrimental effect on the quality of online learning, particularly for children.

UNICEF notes that more than 90 percent of countries adopt digital strategies for distance learning with only 60 percent adoption for pre-primary education. In fact, 31 percent students worldwide (463 million) are unreachable by broadcast and internet-based distance learning either because of a lack of necessary technology devices at home, or because they are not targeted by the policies adopted. While schools remain closed, online platforms are the most widely used way by governments to provide distance education. Although 83 percent of countries use this method, unfortunately only about a quarter of school children worldwide reach out..

Some of the above-mentioned issues have prompted this study to explore the effectiveness of implementation of education for elementary school children during COVID-19 pandemic in Indonesia. This research was conducted from April to September 2020 in 24 provinces in Indonesia. The purpose of this study was to analyze the effectiveness of education for elementary school children during the COVID-19 pandemic in Indonesia.

## **Research Methods**

This study uses a mixed method, which combines quantitative inquiries and qualitative approach. Mixed method research is a research design that departs from the philosophical assumptions of the scientific inquiry. This approach is carried out in combination with the aim of providing a better understanding of the research problems and questions. Mixed method combines quantitative with qualitative methods alike in a study, so that the data obtained is more comprehensive, valid, reliable, and objective.

The convergent parallel designs are a way of collecting quantitative and qualitative data. This study utilized both data simultaneously to understand research problems. The advantage of this model lies on its advantage combinatory of the two combined data, namely quantitative data for generalization and qualitative data for contextualization. The research model allows researchers to obtain information through the best methods offered by data collection techniques both quantitatively and qualitatively.

This research was quantitatively carried out by distributing questionnaires by using Google form which was circulated throughout the provinces in Indonesia through Whatsapp groups either through local governments or through stakeholder groups. The questionnaire was distributed in all regions in Indonesia, but the collected samples were spread across 24 provinces, with 1289 samples from primary school teachers, 2131 primary school children, 469 parents, and 45 local governments from the district and regional education officers. In-depth interviews were conducted with 40 informants from parents and local government.

Data collection techniques were carried out by surveys, in-depth interviews, observations and focus group discussions, especially for parents and elementary school children. The results of data collection were processed using a triangulation approach. Triangulation is an effort to check the truth of data or information obtained by researchers from various perspectives by reducing as much as possible the bias during data collection and analysis. In this study, triangulation of methods is used by comparing information in different ways. In addition, triangulation of data sources is conducted by exploring the truth through various methods and sources of data acquisition. Lastly, theoretical triangulation is utilized to increase the theoretical depth of the results of data analysis. Data analysis uses a combination of quantitative and qualitative approaches.

## **Results and Discussion**

### **E-Learning and Its Problems**

E-learning has become an educational choice for children almost all over the world. The choice of this learning method is mainly to prevent the transmission of Covid-19. In addition, it is an alternative to avoid school dropout. During approximately one year of the implementation of online learning in Indonesia, there have been a number of studies examining the impact of the Covid-19 pandemic on students in Indonesia. A study shows that the reduced interaction of children with the social environment directly causes children to become bored, and if left unchecked, it will increase depression. Another challenge that must be faced is related to the effectiveness of using gadgets or devices. The tendency of children to play gadgets during the pandemic will pose a great risk for children to be exposed to inappropriate material content, for example regarding the consumption of unhealthy snacks, gender stereotypes, and even bullying. Consequently, it will cause new problems that will actually have a detrimental effect for children.

The online learning model developed by Garrison, Anderson & Archer is based on three concepts, namely cognitive, social, and teaching. This model is designed with an active learning environment, where a community is dependent on instructors and students to share ideas, information, and opinions. The presence of the parties involved in e-learning is a social phenomenon that manifests itself through interactions between students and instructors. Online learning can be carried out effectively with the availability of following materials : (1) information technology to enable interaction between students and teachers; (2) teachers understanding online learning, to increase creativity as an absolute requirement for successful learning; and (3) the ability of students to provide and use technology as an unavoidable requirement.

The number of elementary school children in Indonesia is 25,203,371 from 149,435 schools, with 556,969 principals and teachers, 91,123 non-teaching staff, 1,121,739 classes and 1,112,993 classrooms. During one-year pandemic, there were 278,304 elementary school children who stayed in class and 59,443 children dropped out of school. This condition can be seen especially in remote areas such as in Papua and West Papua Provinces. Children's learning is less likely to be done with e-learning model. This is due to the limited availability of facilities and infrastructure, the limited ability of teachers to use e-learning media, the limited ability of students to use information technology, and the inability of parents to provide cell phones or computers. However, physical learning is now carried out, in which once a week, the children come to school to take worksheets to do at home. The problem was not solved because when

doing the assignment, there was no place to ask questions for the children. The inability of parents to understand the task becomes an obstacle.

Mothers in Papua and West Papua do not yet have the ability to understand the subjects taught in schools. According to the Head of the Office for Women's Empowerment and Child Protection, Boven Digoel Regency, Papua, Mrs. Emundo, the learning conditions of children during the Covid-19 pandemic are alarming. Many children do not have the ability to learn well. It is feared that this condition will have an impact on the quality of children's education in Papua. Similar conditions were also found in other provinces such as North Kalimantan, East Kalimantan, Southeast Sulawesi, and North Maluku. The conditions in Javanese towns are better, but in remote rural areas, the situation is the same. This situation affects the interest and willingness to learn in elementary school children.

Other studies also show the same situation. Some times in the learning process, children get bored, and the adults begin to spread memes in the form of complaints against online learning. They update the status with various claims, ranging from many tasks, exhausted quota, and internet network conditions. A study of nursing students showed anxiety among participants related to the effects of the Covid-19 on the learning process. This anxiety causes boredom in online learning. Children's irritability is directed to people around them for environment disturbances and internet network.

Online learning has a significant impact on the level of learning motivation among students. During a year of teaching and learning process using online system, the level of children's learning motivation decreased. This is marked by reduced discipline when attending lessons and decreased student attendance. Moreover, student responses to the material provided by the teacher are low. Students are slow to work on and complete assignments given by the teacher on the grounds of being constrained by the internal network.

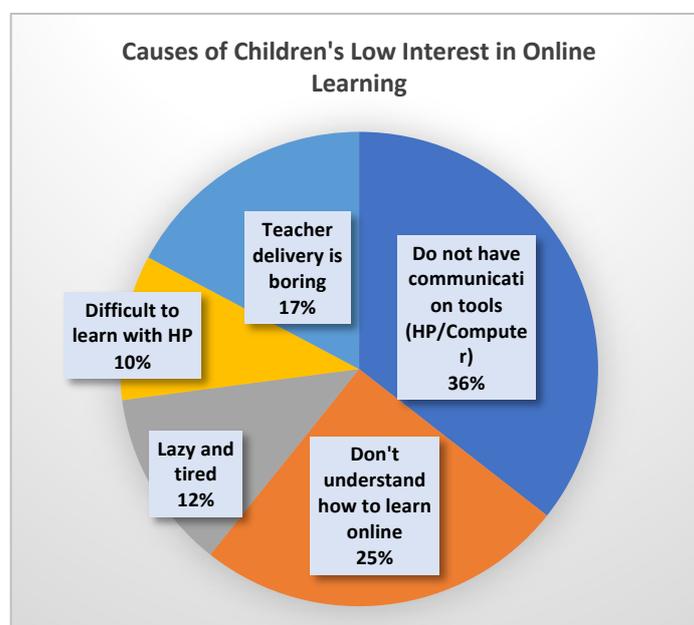


Figure 1. Causes of Children's Low Interest in Online Learning

The interesting thing is that the children are bored, tired and lazy to study, coupled with the pressure of parents who are nervous and afraid about the progress of their children (Figure 1). The follow-up impact is the emergence of domestic violence both verbally and physically.

Parents do not understand much about the psychological dynamics behind the occurrence of boredom, fatigue, and laziness in children. The increasing number of patients and suspected cases, as well as the increasing number of countries affected by the Covid-19 outbreak, has raised public fear about the rapid transmission of this epidemic. This has led to increased anxiety. Boredom is triggered by the distance of children from the surrounding environment, friends, teachers and school. The results of focus group discussions with children in one of the research locations in Semarang City, Central Java, showed that children could not stand at home because they were unable to express themselves in daily activities. Children miss football, playing and studying together, practicing singing and dancing and the activities they used to do. Anxiety arose in the discussion because of the economic pressure of parents. Children with vulnerable, poor conditions have greater pressure.

### E-Learning Effectiveness

Effectiveness is a measure that states how far the target in terms of quantity, quality and time has been achieved by the service provider. Effectiveness is a measure of the achievement of predetermined goals or objectives. Thus, effectiveness is the relationship between output and goals. Effectiveness can be seen from the achievement of goals, namely the process, integration, socialization, consensus development, communication and adaptation. In term of the effectiveness of e-learning, the measure used is the success of learning with the e-learning model. Learning outcomes is considered success when participants gain new understanding as a result of e-learning. Effectiveness is also measured by the ability to implement e-learning content or processes for users and implementers. In this study, the effectiveness of e-learning is measured by the results and the ability to apply the content or learning process.

The results of the study also show that e-learning from learning outcomes is quite successful in terms of student learning outcomes. Associated with content or process indicators, the results are not effective, evidenced by the recognition of both teachers and parents. Teachers claim that not only does e-learning encourage teachers to be creative and innovate, but also has an impact on the less optimal learning quality. Besides being acknowledged that teachers have difficulty preparing learning materials, teachers are also not accustomed to using gadgets or computers connected to the internet. Even though they have been trained by the local government, due to the fast and sudden process, teachers also experience obstacles in replicating e-learning model. Several teachers interviewed expressed a desire to be able to do face-to-face soon. Although worried about transmission, the desire to be able to transfer knowledge physically to children is also a longing in itself. Figure 2 showed teacher's perception of e-learning.

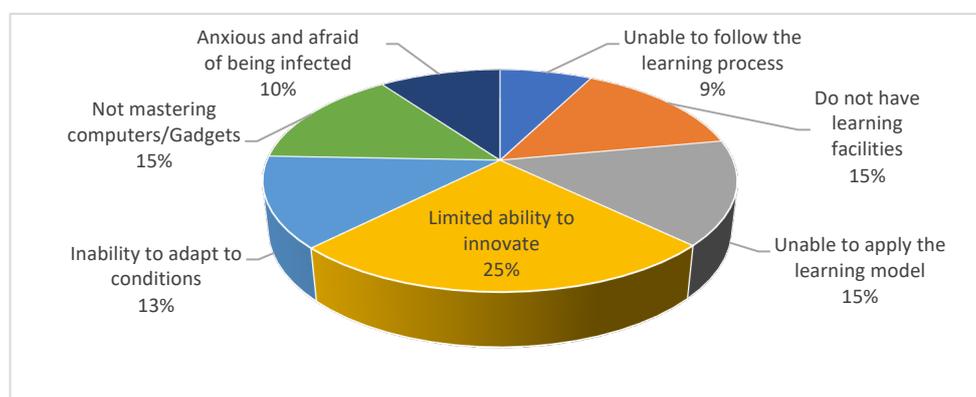


Figure 2: Teacher's Perception of E-Learning

The findings as presented in Figure 2 showed that both students and teachers feel anxiety. One of the anxieties felt is when they have relatives or acquaintances who are infected with Covid-19. They have to be faced with two things they are afraid of, namely health and the continuity of life that is isolated from the environment. Another anxiety is about economy as it has a direct effect on everyday life. In families who are deprived or poor, this condition is getting worse. They must earn an income to survive, while keeping them from getting infected with the virus. A study in China revealed the anxiety due to various pressures in dealing with Covid-19. Social support is negatively correlated with public anxiety in China. Mental health is severely affected when facing a public health emergency. So that they need attention and assistance from the community, family, and school.

The results also show that most parents are worried about their children's education with this e-learning model. They stated that e-learning was not effective. The government and local governments are considered not ready to face the pandemic and develop an effective learning model. This critical attitude of parents is part of the parents' inability to deal with e-learning model. In addition to having to provide learning infrastructure, parents also have to prepare many things, starting from providing a safe and comfortable situation, good nutrition, as well as accompanying the children during the learning process. This is not difficult for middle class parents, but it is burdensome for poor families.

The assessment of the unpreparedness of the government and local governments to make humanistic and quality learning is shown from the learning process that has been accepted by students. According to them, only 20 percent of teachers are able to carry out e-learning well and innovatively. Most teachers are considered to be placing a burden on children in the form of homework or assignments. Usually, parents were slightly involved in the learning process, however, since the implementation of e-learning, parents must make sure their children learn well. Dissatisfaction with learning is manifested by seeking additional tutoring, namely in online courses. Additional expenses to increase knowledge of teaching courses are also a burden for parents.

The results of in-depth interviews with parents showed that e-learning was not effective. Many learning formalities are obtained by children, including the values obtained by children which are considered less relevant to the quality of learning. Public services both from schools and the government are considered not optimal. According to the Public Service Act, it is the right of the community to get good, cheap, fast and quality services. Public services should describe the close relationship between customers and service providers with the orientation on results being the basis in delivering public services. Nonetheless, outcome-oriented public service approach is not an easy thing. The difficulty of the outcome-focused service approach is defining and measuring service improvement. The difficulties include that some policies and services may not explicitly articulate formal goals. Figure 3 shows the differences in the assessment of learning effectiveness with e-learning model during the Covid-19 pandemic between teachers, students and parents.

Figure 3 showed that the perception of the effectiveness of e-learning between teachers, students and parents is different. Teachers consider that e-learning is quite effective in improving the quality of learning, while parents and students are more likely to consider it less effective. Parents and students feel directly the impact of the implementation of e-learning, ranging from the quality of learning to the anxiety.

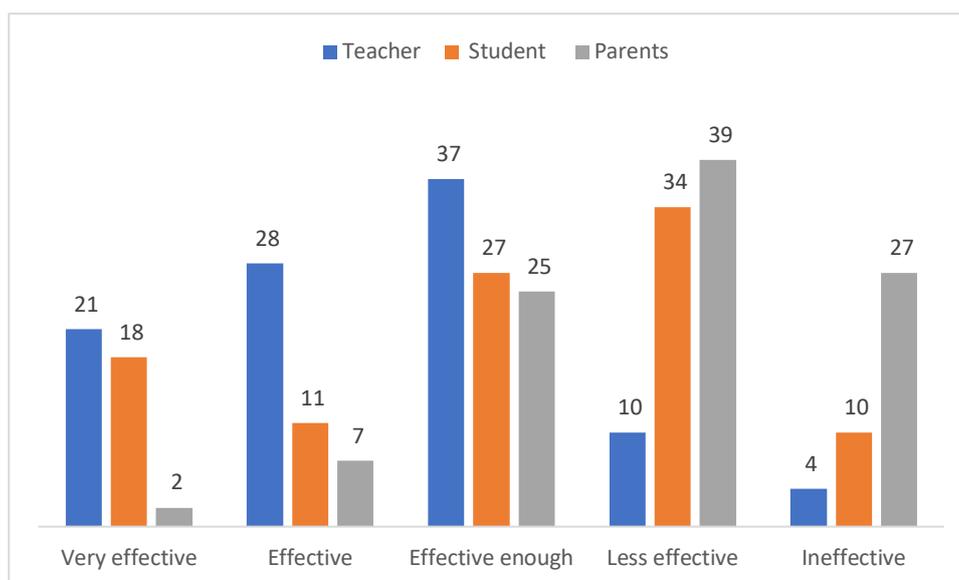


Figure 3: Percentage of E-Learning Effectiveness by Parents Teachers and Students

In e-learning process, children only get limited services, mainly contributed by public services delivered by the teachers. They carry out limited innovation because they are only trained for a limited time. Although this is an emergency, the government's response to improve the public service quality of teachers should be more mature by preparing an understandable model to implement and facilitate the needs of teachers.

The findings also showed that in remote areas, public services for teachers and students are more limited. The reasons for accessibility, network and poor infrastructure re some justification behind this limitation. Parents complained, teachers did too. To increase public services, teachers in remote locations need to improve their capacity in delivering online learning, and to obtain economic assistance to meet online learning qualifications.

## Conclusion

The results of the study conclude that in terms of learning outcomes seen from the results of the learning evaluation report cards, e-learning is quite effective. However, good scores are not a reflection of a good process, indicated by the occurrence in which teachers lowered the assessment quality to encourage and motivate students to be enthusiastic in e-learning. This method is considered quite good because children who feel bored and anxious are entertained with good learning outcomes.

From the perspective of e-learning process, it is considered unsuccessful. Many findings empirically prove that e-learning process is not as smooth as it was formulated. The quality of learning is considered to be still lacking so that some parents need additional learning outside of school. Some children also do not get services because of various limitations, both accessibility to information sources, poor facilities and infrastructure, and the anxiety caused by workload.

Distressing conditions are found in remote and isolated locations and village areas where e-learning is almost impossible to fully implement. For poor families, e-learning adds to the burden due to the inability to access the learning process properly, and becomes an additional economic burden for their parents.

As recommendation, some of the findings have been submitted to the Minister of Education and Culture of Indonesia to immediately evaluate e-learning and differentiate e-learning models from one region to another. This is important considering the level of diversity in Indonesia's territory, customs, culture, and geographical conditions. The government can replicate the face-to-face learning model by dividing smaller study groups, limiting meeting times, and training teachers for participatory and interactive learning processes.

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***Applying a Book Read Aloud and Leveraging It with Storyline Online: A Case Study of Indonesian Preservice Teachers***

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The Asian Conference on Education 2021  
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**Abstract**

This study departed from an understanding that one aspect in literacy teacher preparation is to make explicit personal beliefs of preservice teachers in receiving knowledge and instruction in the program. Enrolling in an introductory course of children's literature, a group of Indonesian preservice teacher participated in a read aloud project where they applied knowledge related to reading aloud to students. As the project evolved, the Preservice teachers attempted to use the Storyline Online digital literacy resource in addition to book read alouds. This qualitative study reported Indonesian preservice teachers' reflections after implementing the two activities. The findings indicated that they gravitated toward having a physical book read aloud for a range of reasons, revealing a positive attitude toward book read alouds. What is more, Storyline Online was considered a useful digital literacy resource to complement the activity of book read alouds and a tool to improve English.

Keywords: Read Alouds, Preservice Teachers, Digital Literacy Resources, Storyline Online, Indonesia

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## Introduction

Interests in literacy education that promote book engagement are currently on the rise in Indonesian public education, especially after the introduction of a literacy initiative called Gerakan Literasi Sekolah (or GLS literacy initiative). One main reason to implement the GLS literacy initiative was an effort to address the issue of Indonesian students' low literacy levels and poor reading habits (Indonesian Ministry of Education, 2016). Efforts to improve Indonesian students' literacy and reading habits focus on engaging students with books promoted through literacy activities such as read alouds, guided reading, and shared reading. Indonesian teachers' role is to facilitate these literacy activities as well as a role model who serves as a living embodiment of how books are enjoyed and that reading is an activity to be cherished (Indonesian Ministry of Education, 2016). Indonesian teachers typically learn to conduct literacy activities specified in the GLS literacy initiative through professional development programs. For example, Indonesian teachers learn steps to conduct a book read aloud through workshops and seminars. Unfortunately, efforts that specifically prepare Indonesian preservice teachers to learn about literacy instruction that facilitate book engagement are not yet an integral part of Indonesian teacher education curriculum. This persists despite a strong body of research available that urges the importance of preparing quality literacy teachers within the confines of a sustainable teacher education curriculum (Risko, et al, 2008; see Standards for the Preparation of Literacy Professionals—International Literacy Association, 2018). With this absence, it is no coincidence that there is a dearth of study in a context of teacher education that investigates how future Indonesian teachers are prepared to gain the knowledge and skills in a response to GLS literacy initiative. (My research on preparing Indonesian preservice teachers with knowledge about children's literature offers some insights about the attention to the reader aspect of a literacy teacher, a literacy teacher who is also a reader (Durriyah, 2019). The present study aims to contribute to the research gap.

Other concerns relate to the inadequacy of book access. According to the Indonesian Ministry of Education Office of Research, there is strong evidence suggesting a lack of book access has exacerbated poor reading habit in Indonesia (Indonesian Ministry of Education, 2019). The poor condition of public and school libraries is to blame. The office insisted that interest to read among students in Indonesia is high, yet the book access is minimal. One suggestion that the report brought forward is to accelerate access to digital literacy resources. These were some of the contexts regarding Indonesia's literacy education that motivated this study. This research framework borrowed one of main foci in teacher preparation that emphasizes highlighting the perceptions of literacy preservice teachers in receiving knowledge and instructions in teacher preparation program (Scott et al. 2018).

### Preservice Teachers' Read Aloud Project

The read aloud project was part of an introductory course for children's literature, a required course for undergraduate English teaching students. An initial focus of the course was to introduce a basic understanding about literature and children's books. I designed the course that included activities demonstrating classroom literacy instruction. I focused on introducing read alouds—partly because a read aloud was one of literacy instruction being highlighted in GLS literacy initiative. Second, a book read aloud activity would require only one book for a whole group, which offers advantages over other literacy instruction that requires teachers to provide copies of books to students (e.g., shared reading). This consideration is important in context where, to my observation, public access to quality English books is low—this

situation echoing earlier official reports about poor access to books in most Indonesian schools (Indonesian Ministry of Education, 2019). The urgent issue was to promote literacy amid book access scarcity. This understanding was then being reflected in how the read aloud project with preservice teachers evolved over the semester. Initially, the course focused on having the Preservice teachers practice conducting a book read aloud to students. As the field experience progressed, these future EFL teachers saw the need for an additional support tool to help them conduct English book read alouds with expressive reading. This was relevant considering as future EFL teachers they felt it was important to be resourceful teachers. In class I showed them a YouTube video of Barack Obama delivering an expressive read aloud of Maurice Sendak's *Where the Wild Things Are*, which impressed them. This led me to search for literacy studies concerned with expressive reading during read alouds. Especially useful in my search was a teaching tip published by *The Reading Teacher*, a leading literacy practitioner journal, which promoted digital text resources for fostering reading fluency (Thoermer & Williams, 2012), particularly a recommendation about Storyline Online.

Storyline Online (<https://www.storylineonline.net/>) is a digital platform literacy resource that provides read aloud videos delivered by professional actors whom one may argue have the capability to deliver an expressive and accurate read aloud performance. It is somewhat an upgraded version of the digital book read aloud program because it offers more than simply a voice over book talk like many digital storybook programs (see, for example, Ciampa, 2012). Storyline Online is touted as one excellent free online resource to help preservice teachers improve expressive reading skills (Kerry-Moran, 2016; Thoermer & Williams, 2012). Such a video format of professional actor read alouds is helpful because it enables students to hear a professional actor's reading expression—aiding students' story comprehension. After receiving some demonstrations for using Storyline Online, the Preservice teachers returned to the field and this time used Storyline Online in place of a book read aloud. The Preservice teachers reflected on the two experiences in writing following a set of guided prompts. In the teacher preparation program, a guided process of student teachers' learning reflection is arguably critical in shaping future teaching practices (Foong, Nor, & Nolan, 2018). The written reflections serve as data source for this research.

My goal with this research was to identify some of the Preservice teachers' perceptions about the book read aloud and Storyline Online activities after having conducted both with students. Perceptions here are defined as "personal beliefs" with regard to literacy instruction (Scott et al., 2018, p. 6), which in this case are the Preservice teachers' beliefs on read alouds. I wanted to know how Indonesian preservice teachers, who for the majority just learned about reading aloud as part of literacy teaching, would reflect on their experiences in conducting a read aloud activity with young readers. I was interested in knowing, from the perspective of promoting literacy through reading aloud, what they perceived about the activities of book read alouds and Storyline Online in terms of distinctive characteristics and possibly similarities. In addition, I was especially interested in gleaning from the data the opportunities for utilizing digital literacy resources into literacy instruction. This was partly motivated by research recommendations by the Indonesian Ministry of Education (2019) cited earlier that encouraged the use of digital resources to promote literacy culture, especially amid the poor conditions of public and school library collections. So, I was interested in learning to what extent this effort of digital resource utilization in literacy instruction would be relevant in the context of Indonesia. The point is to support the idea that literacy teachers must consider this digital technology trend and so must experience a teacher preparation program curriculum that considers digital literacy resources. Following this introduction, I will review the literature relevant to the topics under the discussion. A

methods section will describe the research approach, context, and data collection. The research findings will be presented and discussed next, followed by the conclusion section.

## Literature Review

International Literacy Association (ILA) released a literacy leadership brief emphasizing the power of read alouds to foster a lifelong reader: “Reading aloud is undoubtedly one of the most important instructional activities to help children develop the fundamental skills and knowledge needed to become readers” (International Literacy Association, 2018, p. 2). The ILA highlighted what literacy research has documented about read alouds, including the frequency of read alouds in daily literacy activities and the use of different genres (beyond narrative texts) and subject areas (math included). One related issue discussed in the brief is concerned with read aloud preparations because “what matters more than merely reading aloud is the quality of the teacher– student book interaction” (International Literacy Association, 2018, p. 4). Those highlights from the ILA literacy brief emphasized teachers’ knowledge and skills in performing read alouds with students.

Fisher and colleagues (2004) summarize the benefits for students of a read aloud, noting that “read alouds are an effective way to introduce students to the joy of reading and the art of listening while developing their vocabularies, experiential backgrounds, and concepts of print and story” (pp. 8-9). They add that “through a read aloud, teachers can model reading strategies and demonstrate the ways in which the language of the book is different from spoken language. Children’s understanding of the patterns and structures of written language can be developed through read alouds” (p. 9). Fisher et al. also found that read alouds provide an opportunity for teachers to model oral reading fluency (“The teacher read the book flawlessly. Her prosody engaged the students and they were captured as she presented the chunks of text”) (p. 12). Teachers were also animated and effectively used expression to engage the students who “laughed at jokes in the books as she read them, clearly following along with the text” (p. 12).

These effective read aloud characteristics are important to highlight because reading expression is a critical component to building reading comprehension. Unfortunately, research suggests that many preservice teachers “have developed habits of reading aloud without infusing meaning into the way words are spoken” and therefore need help “developing expressive reading skills” (Kerry-Moran, 2016, p. 661). Digital technology development offers an expanded avenue for literacy growth specifically for building reading comprehension (Lacina & Matthews, 2012). Literacy researchers and practitioners have suggested several reading comprehension areas that digital texts could potentially help to develop with readers including vocabulary enrichment (Lacina & Matthews, 2012), reading fluency, and reading motivation—i.e., widening students’ opportunities to read (Thoermer & Williams, 2012).

From research on literacy teacher preparation, Scott et al.’s (2018) research review gave us three major conceptual categories in the field: perceptions, resistance, and experience. The category of perceptions involves preservice teachers’ beliefs towards literacy curriculum within the program. The resistance category describes preservice teachers’ tendency to favor or avoid certain literacy approaches rather than exercising all that are offered by the program. The category of experience describes preservice teachers’ prolonged direct experiences of exercising multiple approaches of literacy pedagogies. These three conceptual categories are useful to understand some of the identifiable phases that typically occur during a student

teacher's program. I argue that the purpose and scope of the current study fit into the category of perceptions as the goal is to uncover Preservice teachers' beliefs about read aloud and Storyline Online instructional activities.

## Method

This report followed a qualitative research paradigm situated in a teacher education program in a public university in Indonesia. The participants were 87 preservice teachers (of female predominated) who enrolled in an introductory course of children's literature that the author taught. Data was gathered from written reflections reporting a practical assignment of tutoring children. In the assignment, all the Preservice teachers were required to conduct read alouds with K-12 students in an afterschool program. Initially, the read aloud activity focused solely on reading aloud from a book that the Preservice teachers borrowed from a library or bought from a bookstore. As the read aloud assignment progressed, the Preservice teachers utilized read aloud content from Storyline Online with students. They reflected on the experiences through written response to a set question prompts: *What do you think about a book read aloud? What do you think about Storyline Online? What are the similarities and differences between a book read aloud and Storyline Online? When is the best time (recommended time) to do a read aloud? And When is the best time (recommended time) to do Storyline Online?* I submit that these questions would enable the study to elicit explicit information about the Preservice teachers' personal beliefs after having learned and applied read aloud literacy instruction. Answers to these questions were grouped according to the similarities of answers to each category. The original words of the Preservice teachers are italicized and narrated. For instance, in a question about a book read aloud (a category), elements that the Preservice teachers noted related to literacy development were 'intimacy' or 'bonding' during a read aloud. So, any similar data from the Preservice teachers' written reports were grouped into this categorical theme of intimacy of a book read aloud. These reflection questions guided the report as presented in the findings below.

## Findings

In presenting the findings, I will group them according to the topics culled from the Preservice teachers' answers to the guided questions. The findings presentation begins with the students' perceptions about a book read aloud activity—having had experienced it with students. Next is a presentation of their perceptions about Storyline Online—also having had the experience with students. The focus is to highlight what was considered distinctive about the activities in terms of fostering literacy culture. Following that presentation is a description of some of characteristics that according to the Preservice teachers were similar between a book read aloud and Storyline Online. The findings presentation will be concluded with the Preservice teachers' suggestions about the recommended time to conduct the two activities.

## Book Read Alouds

Indonesian preservice teachers noticed that a book read aloud activity builds *intimacy* as there is an extended moment of having a direct interaction and physical closeness between the reader and audience, and this may create a *bonding* between reader (teacher/ older siblings) with children. The interactive nature of read alouds *is naturally able to interrupt for clarifications and questions*, among others. In read alouds, students are able *to touch and flip back and forth book pages*. On some occasions, teachers may *allow students to take turn in reading aloud a book*. One prominent feature that sets read alouds apart from other literacy

instruction is *pointing*. Having experienced a read aloud activity, preservice teachers found that *pointing in read aloud matters*. As simple as it sounds, they noticed that *pointing makes reading aloud easier to manage, just pointing*.

Literacy development is noticeably facilitated in reading aloud. For one, a book read aloud *ignites reading habit*. Students' *literacy* is fostered as a result of teachers being *more creative with activity*. Teachers may *begin with read aloud that builds critical thinking, in hopes that it sets the class for the rest of the day*. The appearance of a physical book is almost a necessity in a read aloud. The Preservice teachers argued that having a *physical book in reading aloud is superior*. It matters because it invites *student's direct responses*. They may *ask about vocabularies*. Having a physical book would allow students to *read to themselves* (read independently) after a read aloud. One example of the benefit of having a physical book and a teacher who reads aloud is that teachers would *point out to images/pictures in order to help students'* making sense of a storybook. What is more, there a sense of teachers having control over the pace of a read aloud. Read alouds seem to be more manageable. Teachers *can control reading pace*. Some even argued that in terms of *equipment*, read alouds require *less stuff* where they only need a book for read aloud. Perhaps the Preservice teachers compared that experience with Storyline Online which requires technology to view (e.g., computers or smartphones) and an internet connection.

### **When Is the Best Time to Do a Book Read Aloud?**

Most preservice teachers felt a read aloud was a suitable *everyday* activity, which means to *do daily read aloud* or *read aloud daily*. Some specified their daily read aloud routine. For example, preservice teachers would *begin class with read aloud as an opportunity to explore genres*. They also felt a read aloud could be conducted regularly in *English subject class*. Some reasoned that to have a *read aloud in the beginning of class is for the purpose of building teacher-student chemistry*. On the opposite end of this, some felt a read aloud at the conclusion of the class would relax the students: *Read aloud at the end of class to relax students*. A read aloud is a relaxing activity that they considered also *before bedtime*. Other than that (and other than having read alouds as an integral part of daily classroom activity), many preservice teachers considered read alouds appropriate for an *outdoor* activity such as during a *picnic*.

### **A Book Read Aloud Challenges**

In terms of challenges with book read alouds, some argued that *read aloud is difficult* to conduct. Students referenced the preparation. A book read aloud demands teachers prepare. For example, they have to *practice with a right expression and English intonation*. Another challenge dealt with an issue about *scarcity of good printed English book*. This is true in regard to a good storybook in English because many of those English storybooks are printed overseas which results in a high price in Indonesia.

### **Storyline Online**

The quest to find out the Indonesian students' perceptions about their experiences with using Storyline Online with students was, among others, to understand what makes this activity different from that of a book read aloud. Speaking of Storyline Online, the Preservice teachers highlighted that *Storyline has many advantages*. One is concerned with English language learning. Storyline Online is superior for *listening and intonation* and perhaps

*animation*. Read by popular figures in Hollywood whose English is mostly their first language, the program is an excellent source for *learning English*. They imagined, for instance, using *Storyline before teaching grammar*.

This fact about reading delivered in English also affects the audience. In terms of an audience, *Storyline is for older students*—this is in a context of an Indonesian school where English is considered foreign language. Besides English, older students will benefit from Storyline Online. Their *critical thinking* will be facilitated from viewing the video; plus, *the activities* are deemed suitable for *older students* in Indonesia. One thing for sure is that in the scarcity of good and accessible English books, *Storyline offers many excellent English book collection*. Formatted in video, Storyline makes it *possible to repeat*; therefore, it is *efficient*, they said. Another aspect that they found superior from Storyline Online is that the video comes with many *activities related to the story*. They insist that *with storyline, to make children love reading is easier with social media*. Included in their favorable views about Storyline Online is their claim that *Storyline demands less preparation on the teacher part*. Storyline Online may serve as a time filler in class, especially because it requires less preparation by the teacher. Indeed, it perhaps requires less work by teachers, but they also insisted that *teacher need to understand the story in case student want to repeat the video and ask explanation*. In other words, teachers need to at least do some preparations prior to Storyline Online.

### **When Is the Best Time to Do Storyline Online?**

As far as Storyline Online is concerned, the Preservice teachers imagined using it *once in a while, storyline occasionally*. Because Storyline Online contains several activities, they thought it would work to *occasionally do storyline along with the activities provided*. Another idea is to pair Storyline Online with a read aloud; that is, *start the class with read aloud and end it with storyline*. Another consideration within a school environment is to have *Storyline in English extracurricular activity*. In a context outside of the school environment, they thought about using *Storyline any free time, especially as it can be used with a smartphone as some of the Preserviceteachers did*. Storyline is considered a suitable activity *when one gets stuck in the traffic*. All in all, they said, *Storyline is a good option when there's no book, for example on a trip, and we forget to bring books*.

### **What Are the Similarities Between a Book Read Aloud and Storyline Online?**

In terms of the similarities between read alouds and Storyline Online, the Preservice teachers insisted that they both have *the same goal and procedure*. A book read aloud and Storyline Online are about getting students to focus (*both help students pay attention and be focus*) and to have fun (*both facilitate student to focus, joy, and responses*). In both activities, students' literacy development is fostered.

Specifically, they insisted that a book read aloud and Storyline Online are helpful in *developing student language and nurture imagination*. For example, both activities invite students to imagine and talk about a story (*both enables student to imagine the story and to respond*). The Preservice teachers argued that the invitation to talk provides the opportunity for students to be able *telling anything in their mind about a story*, and in that sense it *allows to improve students' response to story*. Read aloud and Storyline Online *enhance students' vocabularies*. From a teacher perspective, *both activities make a teacher to be active*. They both *require interaction with students*, and both activities *help teacher to introduce to new*

*stories*. In using read alouds and Storyline Online, teachers learn to *select books according to age and interests*.

### **Storyline Online Challenges**

When it comes to Storyline Online, the Preservice teachers were mostly concerned with technical matters. Unlike in a book read aloud, *in Storyline it is not practical to rewind the video/locate words that students find difficult to grasp*. Specifically, viewing someone reading a book in a video makes pointing to specific text, words, or images more difficult. *Storyline is hard to point*, they said. In term of delivering, *Storyline is hard to manage student to shift focus between video viewing and teacher interaction*. Finally, regarding technology and internet access, they said *storyline requires internet data and laptop or smartphones which some of them viewed as a burden*.

### **Discussion**

This research was framed with an understanding that in literacy teacher preparation it was critical to investigate preservice teachers' "emotional predispositions toward literacy" (Scott et al. 2018, p. 6)—in this context their predispositions towards read aloud instruction. The quest of the research was to know about the personal beliefs (perceptions) of Indonesian preservice teachers after having conducted two literacy activities with students; one was a book read aloud and the other one was *Storyline Online*. The findings show what the Preservice teachers perceived about the two experiences. In general, the Preservice teachers held a positive perception about a book read aloud especially in terms of offering a direct interactive experience between an older reader and a child audience. There is an intimacy of human physical interaction and the direct ability to interact with books (i.e., touch, point, etc.) within the context of daily literacy learning sessions. This confirmed our current understanding that the superiority of a book read aloud rests in interaction between teachers and young readers that is the crucial moment of "teacher-students book interaction" (International Literacy Association, 2018, p. 4).

The findings also show that the Preservice teachers noticed the benefits of a book read aloud and could envision its strategic role for activities inside a classroom (from literacy teaching e.g., genre exploration, to class time management, e.g., opening and ending a class with a book read aloud). This finding echoed earlier research on the many ways teachers could utilize book read alouds (Fisher et al., 2004) such as for the purposes of demonstrating reading fluency, facilitating access to texts, to managing the classroom (Albright & Ariail). The findings suggesting read alouds' strategic role in classroom literacy instruction affirm a long praxis of read alouds in teacher education (see Moore, 2018; Mitchell, Homza, & Ngo, 2012).

Finally, another interesting finding about a book read aloud is that the Preservice teachers found it to be beneficial for activities outside classroom (e.g., an activity of book read aloud during picnic). However, it is relevant to bring up Fisher et al. (2004) who reminded teacher education programs to avoid giving the impression that a book read aloud is simply a filler activity, "an optional activity or a break from the routine of the classroom." They cautioned that it is pertinent to remind preservice teachers that "one of the purposes of reading or being read to is enjoyment" (p. 15)

In terms of the challenges, the Preservice teachers noticed two issues regarding a read aloud activity using book written in English. First, quality English books for a read aloud are not easily accessible due to high cost or a lack of availability in libraries and bookstores in Indonesia. Second, as they are presently being prepared to become teachers of EFL, the Preservice teachers in this study were aware of challenges for non-native speakers to produce correct English sounds (Wen Chien, 2014) and meaningful gestures. In the case of a book read aloud, the Preservice teachers felt it was challenging to read out loud an English storybook using appropriate expressions and accurate English intonation. Yet, to some extent, this challenge of delivering an expressive read aloud is not exclusive for non-native English speakers. In fact, as other research also noted, it is a challenge that is faced by many whose English is the first language (Kerry-Moran, 2016).

In Storyline Online, the Preservice teachers saw a potential for English teaching, one that in a book read aloud they noticed was least facilitated. Benefits of Storyline Online focused mostly on its potential support for literacy development in English (EFL) class. For example, Storyline Online contains videos of book read alouds from good quality English books that are not accessible for many Indonesian students. Storyline Online is also one kind of digital text considered to be helpful in supporting students' English intonation and listening skills in general. This potential of digital texts for improving students' English sound accuracy is like a finding in another study. Nayak and Sylva (2013) found that for English learners, the benefit of digital text programs is recognized mostly in gaining accuracy of English words. In their words, "opportunities to hear a text read out loud...as part of an e-book, seem to enhance accurate reading aloud skills" (p.97).

Another English learning benefit in viewing Storyline Online was to serve an excellent activity in an English grammar class or any extracurricular activities (afterschool programs) that focused on English. As a digital literacy resource, Storyline Online contains moving animations which the Preservice teachers argued also help to facilitate the story comprehension. The efficiency of Storyline Online is noticeable especially in terms of its ability to play repeatedly and its usefulness to deliver educational activity outside of a classroom when there is no book around such as an outing or when stuck in street traffic (like in Jakarta where this research was conducted). In short, using Storyline Online would make it possible to expand children's love of reading.

Finally, the Preservice teachers' direct observations indicated that students of higher grades (secondary level students) learned English from viewing Storyline Online videos; however, it indicated less for lower grade students (elementary level). One explanation perhaps is the fact that in Indonesian curriculum, English subject (EFL) was not officially offered until after an elementary level so the content had little educational relevance nor immediate need for this group. What's more, the most noticeable interruptions that the Preservice teachers experienced when viewing Storyline Online with students were to manage the students' focus and to prompt students occasionally to pay attention to the instructions from the Preservice teachers. They also noted that Storyline Online made it impractical to locate interesting words or words considered difficult to grasp. Another downside of the utilization of digital literacy resources like Storyline Online is concerned with the cost of internet access when the Preservice teachers were providing instruction outside of university or school contexts where most access to an open internet connection is usually available.

## **Conclusion**

Indonesian preservice teachers noted similarities between book read aloud and Storyline Online activities ranging from comparable goals and procedure and aspects of literacy development (getting focused, nurturing imagination, enabling active response, and enhancing vocabularies) to the required teachers' abilities in doing the two activities (encouraging active interactions, picking books relevant to student's age and interests, and having an ability to expose students with stories). A book read aloud is especially favored by Preservice teachers for it facilitates access to student-teacher book interaction.

The Preservice teachers considered that Storyline Online's role could be to complement a book read aloud's literacy instructional activity. They recommended starting a class with a book read aloud and ending class with Storyline Online. This way Storyline Online will perhaps give leverage the benefits of book read alouds. They suggested digital text literacy resources such as Storyline Online are not replacements for teachers reading aloud interactively to students. Instead, Storyline Online can complement an existing practice of book read alouds by its incorporation into literacy routines (Thoermer & Williams, 2012; Kerry-Moran, 2016).

The focus of making visible Indonesian preservice teachers' personal beliefs about read alouds revealed mostly positive attitudes toward a book read aloud. They noticed some benefits and showed motivation to conduct them. The same goes with Storyline Online where, in addition to complementing a book read aloud activity, they noted some potential benefits to utilizing that digital literacy resource for learning English, despite the internet access downside.

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*Exploring the Effects of a YouTube-Style Video Making Task in Online English Communication Courses*

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**Abstract**

This study investigated the effects of a YouTube-style video making task in English communication courses with a soft CLIL approach. The primary purpose was to explore its effects for content learning and language learning, and the subsidiary purpose was to examine its feasibility in an online format. Participants were 53 students from four English communication courses at two universities in Japan. As the final project, the students planned and made a video of any genre they could find on YouTube and edited it with an application to produce a video with a detailed English narration. In total, 47 videos including two pair projects and two group projects were produced. The content of the videos and the comments on the accompanying worksheets were analyzed to assess the effectiveness of this task for content learning. In addition, the narration was analyzed linguistically to explore the extent the task enabled the students to demonstrate their productive skills of English and to identify areas which would require further linguistic instruction. The results indicate that making YouTube-style videos is an engaging and beneficial task and can produce a highly positive learning experience even when the course is held online.

Keywords: Video Making Task, English Communication, Online Learning, CLIL, EFL

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## Introduction

In recent years, video sharing websites have gained popularity across the world. Video sharing websites enable users to upload their own videos as well as enjoy the videos uploaded by others. YouTube (<https://www.youtube.com>), a leading video sharing platform, has nearly 2.3 billion monthly active users worldwide (Statista, 2021b). Japan, where the current study took place, has the sixth largest estimated number of YouTube users in the world, with over 72.5 million users in 2020 (Statista, 2021a). According to a report by the Ministry of Internal Affairs and Communications of Japan (2021), 96.5% of teenagers and 97.2% of people in twenties accessed YouTube on a regular basis in the fiscal year 2020. This indicates that Japanese university students tend to use YouTube regularly and that they are familiar with the types of videos uploaded on YouTube. The usage of YouTube in Japan increased in 2020 partly because people were encouraged to stay home as much as possible due to the COVID-19 pandemic. Indeed, the monthly average time spent on viewing videos on video sharing platforms increased by 2 hours and 44 minutes among people between the ages of 18 and 34 in Japan between March and April of 2020 (Nielsen, 2020).

Universities in Japan were also affected by the pandemic. The academic year (AY) in Japan starts in April, and classes usually start in the first week of April. However, the start of the spring semester was delayed at most universities in AY2020, and classes were required to be moved online. The situation had not improved by the end of the summer vacation, and as a result, online teaching continued in the fall semester although on-campus teaching partially resumed depending on the university. The current study was conducted in four English communication courses at two universities in Japan in the fall semester of AY2020. These courses had been scheduled to be held on campus, and the activities and tasks including the video producing task for this study had been planned accordingly. However, the courses had to be moved online instead, and as such, modifications and adjustments were necessary in order to make the materials more suitable to an online format.

The syllabi and lesson plans of the English communication courses had been developed based on the following three approaches to English language teaching: communicative language teaching (CLT) (e.g., Richards & Rodgers, 2001; Savignon, 2005; Spada, 2007), task-based language teaching (TBLT) (e.g., Ellis, 2003; Long, 2014; Nunan, 2006), and content and language integrated learning (CLIL) (e.g., Ball, Kelly, & Clegg, 2015; Coyle, 1999; Coyle, Holmes, King, 2009; Mehisto, Marsh, Frigols; 2008). As Savignon (2005) observed, the core feature of CLT is to have students engage in communication in order to have them “develop their communicative competence” (p. 635). It has also been an approach encouraged and emphasized in English classes in Japan including junior high schools and senior high schools (Abe, 2013, p. 46). Therefore, CLT was an underlying principle in planning the English communication courses. Tasks were important components of the courses as well. Tasks, according to Nunan (2006), “involve communicative language use in which the user’s attention is focused on meaning rather than grammatical form” (p. 17). Accordingly, TBLT was another approach taken into consideration in developing the lesson plans.

However, the structure and the content of the English communication courses were most influenced by the CLIL approach. Mehisto et al. (2008) defined CLIL as “a dual-focused educational approach in which an additional language is used for the learning and teaching of both content and language” (p. 9). One of the main objectives of the courses was to have students learn about the topics of the contemporary society by using English, and as such, the courses were compatible with the CLIL approach. More specifically, the approach adopted in

the courses was soft CLIL, which had been defined by Ikeda (2013) as the type of CLIL “taught by trained CLIL language teachers to help learners develop their target language competency as a primary aim and their subject/theme/topic knowledge as a secondary aim” (p. 32). It was this language-led CLIL which was behind the video-producing task of the current study as well.

Video-producing tasks have been integrated into English language classrooms (e.g., Aksel & Gürman-Kahraman, 2014; Gromik, 2006; Miller, 2007; Nikitina, 2010; Shrosbree, 2008). Hamilton (2010), for instance, investigated the effects of an instructional video producing task by having Japanese university students produce structured instructional videos in groups after watching similar videos online. He observed that the task proved to be “effective in terms of motivation, and both productive and receptive use of English” (p. 29). Similarly, H. C. Huang (2015) implemented a video producing project in an English course in Taiwan with 43 students. The study investigated its effects on language learning and learning motivation through pre- and post-tests, questionnaires, reflection sheets, peer evaluation, and interviews. The students chose their own topic and had opportunities to read and watch relevant materials online and produce voice blogs before engaging in the video producing task. The study showed that the project enabled students to learn and use English in an authentic context and helped to improve their learning motivation as well as English language skills.

Yeh, Heng, and Tseng (2020) analyzed whether multimodal video producing tasks helped to improve English writing skills of English learners. They had 57 university students in Taiwan develop videos about Taiwan in groups based on the information and resources collected online. The comparison of pre- and post- writing test results indicated that the students’ writing skills improved significantly, especially in “word usage, text structure, and content” (p. 8). The learning gain of the project was also expressed in the reflective essays written by the students. H. W. Huang (2021) was another recent study on video producing tasks, aiming to investigate their effects on students’ speaking skills in English. Based on the topics in the textbook, 65 university students from China produced vlogs (video blogs) collaboratively with their classmates in groups by using their smartphones, incorporating their experience in daily life. By analyzing the effects of the tasks through speaking tests, questionnaires, reflection papers, and interviews, her study revealed that collaborative video development tasks had positive effects on the improvement of speaking proficiency, digital skills, and communication skills because the students had actively engaged in the tasks with their peers.

These studies have overall illustrated a positive impact of video producing tasks on the development of students’ English language skills and on the enhancement of their learning motivation. However, most studies have investigated the effects of the tasks through tests, questionnaires, reflection papers, or interviews and not many studies conducted from the perspective of English education have analyzed the content and language of the produced videos themselves in detail. The analysis of the videos is likely to be important especially for evaluating the effects of the task in courses with a soft CLIL approach. In addition, the topics of the videos tended to be limited to academic or cultural topics and the potential of YouTube-style videos, that is, videos with a wide range of topics and presentation styles, has not been fully explored. Video producing tasks in the literature were mostly conducted in the classroom setting. As published studies exploring the possibilities and challenges of English classes during the pandemic (e.g., Hijazi & AlNatour, 2021; Sepulveda-Escobar & Morrison, 2020) were still limited, it also remained to be seen whether this type of task was feasible in a fully online format under the present situation.

The current study investigates the effectiveness of a YouTube-style video making task in English communication courses based on a soft CLIL approach. The main purpose of the study was to explore the effects of a YouTube-style video making task for language learning and content learning. The subsidiary purpose was to examine its feasibility in an online format.

## **Methodology**

### **Participants**

Fifty-three students from two universities in Japan (University A and University B) took part in this study. Participants from University A were 23 students from two English communication courses: 16 first year students (English level: upper intermediate) and seven second year students (advanced). Participants from University B were 30 students from two English courses related to speaking and communication: 18 second year students (intermediate and upper intermediate) and 12 third year students (upper intermediate and advanced). All the four courses were taught by the researcher herself as the instructor. The medium of instruction was English. The courses were held entirely online throughout the semester (90 minutes per week, 15 weeks), half synchronously and half asynchronously. In other words, the classes met real-time online on a video conferencing platform and the students worked on the materials provided by the instructor in an “on-demand” style on the respective university’s learning management system every other week. This format had been selected based on the preference by the students.

### **Materials**

The video making task for the present study was conducted as the final project of the courses. As pre-tasks, the participants spent at least two weeks on topics on media studies or online communities partly based on the textbook used in each course which included reading, listening, short writing, and discussion. They also had opportunities to watch YouTube videos of different genres as materials for listening and discussion and were encouraged to watch YouTube videos in English outside of the class as well. For the final project, two handouts were prepared: an instruction sheet and a worksheet. On the instruction sheet, a detailed instruction of the final project was given along with the grading criteria. The worksheet contained questions which asked students to reflect on the project. It had the following five questions: What is your video about? What is special about your video? What did you like about this project? What was the most difficult thing about this project? Any other comments?

### **Procedure**

The details of the final project were announced to the classes on the tenth week of the semester so that the participants would have approximately one and a half months to work on the project. The task was announced this early in order to have them start working on it before they became busy with the final assignments for other courses. They were asked to follow these steps to complete the task:

Step 1: Choose your category and topic

Step 2: Plan your video

Step 3: Shoot the video

Step 4: Edit the video

Step 5: Upload the video and the worksheet to OneDrive

The category and topic of the video could be anything that the participants thought they could find on YouTube. They could produce the video individually, in pairs, or in groups of three although working in pairs or in groups was not encouraged because of the pandemic. The length of the video had to be at least three minutes for solo projects, four minutes for pair projects, and five minutes for group projects. On the final day of the course, the participants viewed the videos produced by their classmates in their respective classes. They then commented on each other's video and voted on the best video at the end. The instructor provided further feedback after the class on the learning management system. Note that Japan was not under the state of emergency when this project was conducted. All the participants consented to have their videos analyzed and reported for academic purposes.

## **Results and Analysis**

In total, 47 videos were produced: 43 solo projects, two pair projects, and two group projects. The total length of the videos was 178 minutes 32 seconds and the average length was 3 minutes 48 seconds. The worksheet contained comments from the participants based on their reflection of the project (see above for the questions). As the courses were based on a soft-CLIL approach, the data were analyzed from the two perspectives of content and language.

### **Content**

The content of the videos was analyzed from the following perspectives: genres, frequently observed features, additional features, and recurring themes in the comments on the worksheet.

### **Genres and Examples**

First of all, the videos were categorized by the researcher based on their content. Categorization was loosely based on the video categories of YouTube. However, categories such as recommendations were added to better reflect the content of the videos produced by the participants. As summarized in Table 1, the videos could be classified into six main categories: travel vlogs, lifestyle vlogs, recommendations, education videos, instructional videos, and product reviews.

The most popular genre was travel vlogs. There were 14 travel vlogs (29.8%), recording and reporting the footage of the trips to cities across Japan including Kobe, Kyoto, Fukuoka, Naha, and Tokyo. Lifestyle vlogs were the second most popular genre, and this included videos on the daily routine, hobbies, and daily activities. GRWM (get ready with me) videos, which had been popular on YouTube, were also classified as lifestyle vlogs. There were 11 lifestyle vlogs (23.4%) in total. The third most popular genre was recommendations, that is, videos describing and recommending the student's favorite places, cafés, books, or musicians. There were 10 videos (21.3%) classified under this category. Education videos included topics such as SDGs, learning strategies, and popular culture. There were 7 education videos (14.9%) in the data. There were two videos on cooking, one video on special effects make-up, and one video on drawing (4 in total, 8.5%). These videos were instructional, or how to videos, describing the process step by step. There was one product review (2.1%), reviewing a new wireless speaker.

Table 1: Videos classified by genre

Travel vlogs	14 videos (29.8%)
Lifestyle vlogs	11 videos (23.4%)
Recommendations	10 videos (21.3%)
Education videos	7 videos (14.9%)
Instructional videos	4 videos (8.5%)
Product reviews	1 video (2.1%)

Figure 1 to Figure 6 are screenshots of the videos produced by the students. Excerpts of the comments provided by the students who made the videos are also described below. Figure 1 shows screenshots of a travel vlog. The title of the video was “Fukuoka Trip,” and the student described the highlights of her two-day trip to Fukuoka. She wrote on the worksheet, “I want to make my own vlog[s] someday [...]. I can enjoy shooting and editing. Not only for the class, but also it becomes personal memories.” She also wrote, “The most difficult thing was to add narration. Pronunciation, timing, grammar, everything was hard for me.”



Figure 1: Travel vlog

Figure 2 illustrates screenshots of a lifestyle vlog. This video was titled “Christmas: Decorate with Me” and the student showed how she decorated her house for Christmas with the theme of the movie “Home Alone” released in 1990. She wrote, “I did my best to match music, movie, and recording,” and that the challenging points were to think about the structure of the video and to write a script for it. She also wrote, “This assignment was an amazing experience for me!”



Figure 2: Lifestyle vlog

The next figure shows screenshots of a recommendation video titled “My Favorite Rock Band” (Figure 3). In the video, the student introduced his favorite band ONE OK ROCK and recommended three songs performed by the band. He wrote, “I wasn’t able to say the lines smoothly, so it [was] difficult to re-record the post recording many times,” but “I’m glad I was able to create a cohesive video.”

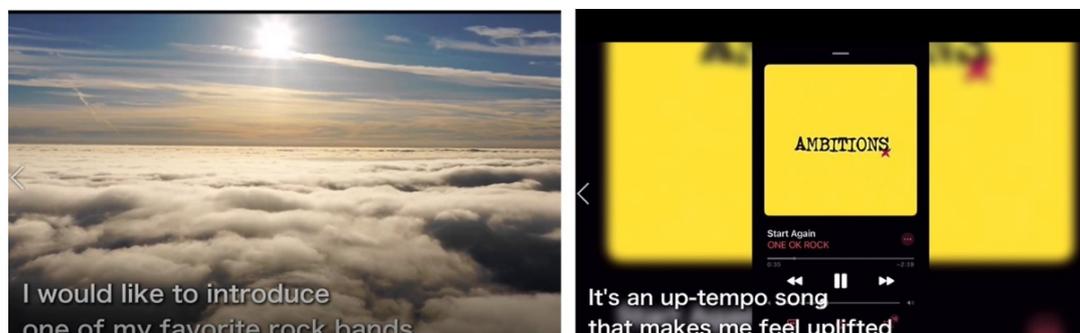


Figure 3: Recommendation

Figure 4 provides screenshots of an education video whose title was “Coffee.” The student talked about the production of coffee, types of coffee beans, and different ways to drink coffee. He wrote, “I edited the video with subtitles and video editing music to make the video easier to watch,” and “I was able to learn things I didn’t even know by making this video.”



Figure 4: Education video

The next figure illustrates screenshots of an instructional video (Figure 5). The title of the video was “How to Make Bûche de Noël,” and the student demonstrated how to make this chocolate cake for Christmas step by step. She mentioned that she made the sponge three times to “get a good shot” and took the video “from two different perspectives.” She also wrote that she was able to provide “concise instructions on how to make the product.”



Figure 5: Instructional video

Finally, Figure 6 shows screenshots of a product review whose title was “New Wireless Speaker.” The name of the product in Figure 6 is hidden due to copyright reasons. In the video, the student introduced the wireless speaker he had bought and reviewed it while demonstrating how it worked. He wrote, “More than I thought, I didn’t have things to talk” but that he enjoyed the project.

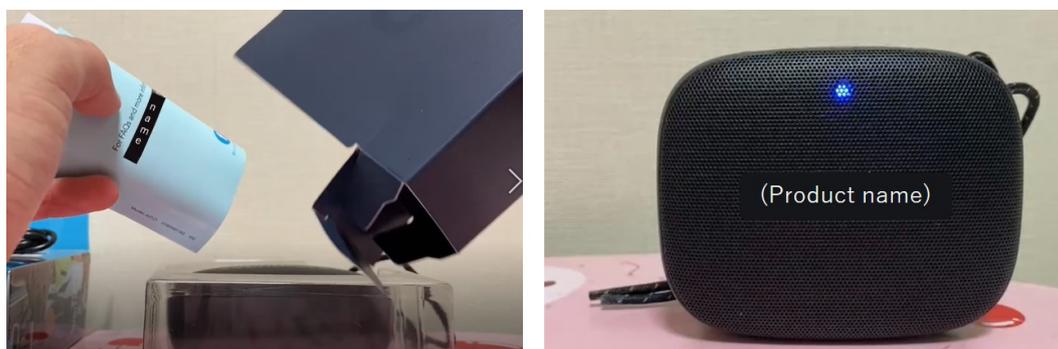


Figure 6: Product review

### Frequently Observed Features

There were two features that were frequently observed in the videos regardless of the genre. The first feature was the use of captions (Figure 7) or textual information on the screen (Figure 8). Thirty videos (63.8%) had this feature, and 10 of them had word by word captions. YouTube videos and variety shows on TV often contain on-screen textual information in Japan, and the students who incorporated textual information in their videos are likely to have followed this style. Those who added captions were concentrated in one of the classes. This indicated that the students were communicating with each other while working on the project even though most of them produced videos individually.



Figure 7: Videos with captions



Figure 8: On-screen textual information

The second feature was the use of background music. This feature was observed in 33 videos (70.2%), and four of them contained sound effects on top of background music. The students were able to choose background music suitable for the theme of the video and even changed the music to match each scene. For example, in a travel vlog to Tokyo Disneyland, the student talked about what she enjoyed there with her friends and used different background music for different scenes. Similarly, two students who made a joint lifestyle vlog with the theme of “rainbow” changed the background music when they moved from one place to another. The creative use of background music and sound effects helped to set the tone of the video and made the viewing experience even more enjoyable for the audience. It should be noted that neither the textual information nor the background music had been required in the project.

### Additional Features

Another noteworthy feature was that the students edited the videos thoroughly by using various applications. Applications used by the participants included iMovie, Vlo, InShot, Perfect Video, VivaVideo, CapCut, Filmora, PowerDirector, Zoom, and PowerPoint. Only the names are listed here because these applications were not directly used in this paper for analysis. Some of the participants used their computer to edit their video, but the majority of them used their smartphone instead. The instructor had emphasized that the students were not required to edit their video substantially because it was for a language class. However, it was obvious from the final products that the participants had put a lot of effort in editing as well.

One more notable feature was that more than half of the participants decided against showing their face in the video although they knew their classmates very well. There were 17 videos in which the student(s) showed their face. Eight of them were lifestyle vlogs, four were travel vlogs, four were recommendations, and one was an instructional video. There were 11 lifestyle vlogs in total, so this means that those who made a lifestyle vlog tended to show their face in

the video compared to those who chose other genres. One of the reasons for not showing their face could be that more than 90% of the videos were solo projects. In fact, the students showed their face in all the videos produced in a pair or in a group. At the same time, there were four videos in which the student(s) made an appearance but hid their face with a stamp, indicating that some students preferred to stay behind the camera.

### **Recurring Themes in the Comments**

All the participants submitted the worksheet along their video. Their comments were categorized by the researcher into good points and challenging points about the project, and recurring themes were identified as follows. As good points, the participants who made education videos mentioned that they gained knowledge about the topic. Those who made travel vlogs often wrote that they were able to recall the event by making the video. The students who put together recommendations mentioned that the project became a good opportunity to share what they liked with their classmates. Overall, the participants agreed that they enjoyed the process of making a YouTube-style video.

As challenging points, two recurring themes appeared: editing and language. Regarding editing, some participants wrote that it was difficult to match the timing of the narration and background music with their video. Difficult points regarding linguistic aspects included the challenges of preparing scripts in English and speaking English fluently and naturally. Their comments indicated that the participants were able to focus on the content of the video, while also being aware of how they used English in the video.

### **Language**

The linguistic aspect of the videos was analyzed from the following perspectives: high frequency words and vocabulary, expressions, sentence types, grammar, pronunciation, and paralinguistic features.

### **High Frequency Words and Vocabulary**

First of all, all the audio data were transcribed by the researcher, and by using AntConc (Anthony, 2020) with Someya Lemma List (no hypens), tokens, types, and word frequency were calculated. In total, there were 15689 tokens and 2631 types in the data. The videos varied in length from 2 minutes 18 seconds to 9 minutes 2 seconds, but the average number of tokens per video was 333.8 and the average number of types was 158.4. The average TTR was 0.475 (Max: 0.643, min: 0.383). As over 85% of the participants had scripted their narration, the data can be mostly considered as scripted spoken language.

Table 2 illustrates the high frequency words in the data, color coded by their word class. This table only shows the 50 most high frequent words for reference, but descriptive adverbs and adjectives did not appear in the list. In addition, words higher in level were not frequently observed except for technical terminology.

Table 2: High frequency words (lemmatized)

1	be (900)	11	you (220)	21	there (89)	31	very (61)	41	as (49)
2	the (613)	12	we (158)	22	about (86)	32	by (59)		like (49, verb)
3	I (576)	13	so (157, conj)	23	but (84)	33	first (58)	43	movie (48)
4	and (438)	14	have (151)	24	on (77)		one (58)		next (48)
5	to (381)	15	my (145)	25	not (76)		when (58)		see (48)
6	a (329)	16	for (129)	26	at (71)	36	do (56)		so (48, adverb)
7	of (309)	17	that (111)	27	he (66)	37	also (55)	47	because (47)
8	this (307)	18	go (109)	28	song (65)	38	from (53)		she (47)
9	it (281)	19	with (94)	29	will (63)		time (53)	49	their (46)
10	in (274)	20	can (93)	30	make (62)	40	get (51)	50	watch, want (45)

*Note.* The color represents the main word class of each word. sky blue: verbs, light green: nouns and pronouns, deep blue: adverbs, gray: conjunctions, yellow: auxiliary verbs, orange: others including determiners and prepositions

Looking at the high frequency words and vocabulary by genre, the data showed that the participants were able to choose appropriate words for each genre. For example, in case of travel vlogs, they used various nouns to indicate places (e.g., area, street, garden, shop, café, museum, market), and in case of education videos, they used various verbs to describe their topic (e.g., evolve, emerge, emit, combine, submerge, increase). However, even when analyzed by genre, the variety of adjectives and adverbs (e.g., favorite, scary, beautiful, delicious, various) was still limited.

### Expressions and Sentence Types

In terms of expressions, the participants were able to use expressions that described the scene concisely, properly, and effectively. For example, in instructional videos, they were able to describe the process clearly step by step (e.g., “Then, continue to fry for one minute.”). In lifestyle vlogs, the students made use of expressions to describe each scene without relying too much on visual information (e.g., “My eyebrow pencil is broken. I am shocked.”),

The students did not rely overtly on simple sentences and used compound and complex sentences sufficiently. For example, in a lifestyle vlog, the student said, “It was born from Niji project, and the group name derives from ‘rainbow’” (compound sentence). In a travel vlog, the student said, “After we enjoyed eating canelé, we walked along Kamogawa river to go to next café” (complex sentence).

### Grammar

Analyzing the data from the perspective of grammar, a wide range of constructions were observed including participles (e.g., “In autumn, leaves of mountains turn red and yellow, making colorful patterns.”), passive sentences (e.g., “[The] costume and goods used in the drama were displayed in this house.”), interrogatives (e.g., “When you go to a movie theater, what do you take?”), past perfect constructions (e.g., “[The] view from the tower was [more] beautiful than I had expected.”), and second conditionals (e.g., “An enormous rock appears as

if it blocked Takimichi near the waterfall.”).

Salient mistakes included missing articles (e.g., “I went to fashionable café.”), misuse of countable and uncountable nouns (e.g., “Breads are sold here.”), and mistakes in subject-verb agreement (e.g., “She always help me to [...]”). However, there were not many conspicuous grammatical mistakes regardless of the students’ English levels, and small grammatical mistakes did not interfere with understanding. The instructor had strongly discouraged the use of translation engines. Based on the performance of the students throughout the course, it was most likely that they did write the scripts without the aid of translation engines. As such, the fact that there were not many grammatical mistakes indicated that the students had made thorough preparation before recording the audio.

### **Pronunciation and Paralinguistic Features**

A detailed phonetic analysis was not conducted because it was not the focus of this study. Instead, the researcher observed to what extent the audience found the speaker’s English comprehensible based on their comments to each other. There was visual aid, but the audience were able to provide relevant questions and comments, indicating that they understood the speakers fairly well. From the perspective of the researcher, the students were able to speak clearly and intelligibly in a moderately energetic manner. Some features of Japanese English such as replacing the voiced interdental fricative with the voiced dental stop were heard but did not affect comprehensibility. There were individual differences, but overall, the participants successfully spoke English naturally and fluently. Post-recording seems to have been helpful in achieving this because they could record the audio as many times as necessary until they were satisfied with the outcome.

As mentioned above, less than half of the participants showed their face in the videos. However, those who decided to make an appearance were able to look at the camera straight and talk to the audience with confident facial expressions. They also used gestures adequately. It is likely that those who felt comfortable enough to appear in the video knew or were willing to practice how to present themselves to the audience effectively.

### **Discussion**

This study has shown that the YouTube-style video making task can first promote content learning. In this task, combined with the pre-tasks, the participants gained knowledge about the topics not only from their own videos but also from viewing and commenting on the videos produced by their classmates. Second, the task can promote autonomous learning. The students had to choose their own topic, and partly because of the online format, they had to prepare the videos mostly by themselves. Third, this task can promote language learning. The students were required to “speak as much as possible” during the video, and they had to plan what they were going to say thoroughly especially in case of post-recording. By watching their own video repeatedly, they were able to become aware of their language use.

Fourth, students can gain editing skills through the task. The students voluntarily added music, sound effects, and captions, and by doing so, they were able to learn skills which are necessary in this digital age. Fifth, they can learn to become more aware of the audience. In the task, the participants had to think about the audience when they made the video because they had been informed that they would view the videos together in the class. Finally, they can become aware of their general skills of producing videos in English. Overall, it is a motivational task that can

cover the 4Cs of CLIL: content, communication, cognition, and community (Mehisto et al., 2008) or culture (Coyle, 2009).

On the other hand, there are areas of improvement. Although there were not many grammatical mistakes, it may be necessary to provide more language instruction, especially regarding the integration of “difficult” words as well as descriptive adjective and adverbs. Due to the pandemic, pair and group projects were not encouraged; however, the task is likely to become more effective if students can cooperate with each other more. There are also potential demerits. For example, the task can be time-consuming, and it can be difficult for students with low motivation. The environment of the class also has to be taken into consideration.

## **Conclusion**

In conclusion, this study reported and analyzed a YouTube-style video making task. The study has shown that it is an enjoyable, motivational, and meaningful task for English communication courses with a soft CLIL approach. The task proved to be feasible in an online format, especially in case of classes with students with high motivation.

There are several limitations of this study. First, it was not possible to assess the improvement of English skills quantitatively. There were not enough data on the preparation process, and it was also difficult to compare the learning gain of making videos of different genres. In the near future, a similar study should be conducted in a face-to-face format as pair or group projects with additional language instruction.

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***The Prevalence and Impact of the Maltreatment of Child Laborers in Developing Countries: A Scoping Review Protocol***

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**Abstract**

**Background:** Children working in the rural agricultural and domestic occupations are more prone to maltreatment than children in other settings. However, very little is known about the maltreatment of child laborers. **Objectives:** This protocol outlines the key components of a scoping review that explores the nature and consequences of maltreatment of child laborers in domestic and agricultural work in the South Asian rural context. **Inclusion criteria:** Studies that report on the prevalence, risk factors, or impact of maltreatment of child laborers aged 5 to 17 years engaged in the agricultural or domestic work, their employers or the parents of child laborers. Studies will be limited to India, Pakistan, Bangladesh, and Nepal and include both qualitative and quantitative studies. Grey literature will also be included. **Methods:** This review will seek pertinent studies from databases such as Scopus, PubMed, Medline, PsycINFO and ProQuest. The search strategy will include appropriate terms (and synonyms). A two-part selection process e.g., the titles and abstracts and full texts will be used for the assessment of retrieved records based on the inclusion criteria. Data from the retrieved records will be extracted using the standardised data extraction tool. The outcomes from the extraction process will be pooled in a narrative or statistical analysis depending on the quality of articles retrieved. **Conclusion:** The findings of this review will guide researchers on policy measures to address the issue of maltreatment of child laborers in the four countries identified.

**Keywords:** Child Laborer, Maltreatment, Agriculture, Domestic, South Asia and Scoping Review

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## 1. Introduction

### 1.1 Backdrop of the Study

Child maltreatment is a global social and public health concern. The World Health Organization's (WHO) definition of child maltreatment includes all forms of 'physical or psychological harm, sexual abuse, neglect or other types of exploitation that results in potential harm to children's health, their survival or dignity in the context of a relationship of responsibility, trust or power' (WHO, 2006, p. 7). A WHO report confirms that nearly one in every four adults have experienced physical maltreatment as a child, while 5% to 10% of men and 20% of women report being sexually abused as a child (WHO, 2014). The experience of being maltreated affects children's physical, psychological, social, educational, and interpersonal functioning (Daigneault, Hebert, & McDuff, 2009; MacMillan, Fleming, Streiner, Lin, & Boyle, 2001; Al Odhayani, Watson, & Watson, 2013; WHO, 2006; Norman et al., 2012; Koizumi & Takagishi, 2014).

The WHO (2014) report states that child maltreatment can occur in any social settings either in a child's home, school or community, or in their workplace. The United Nations study on violence against children noted that 'of all the settings where children are exposed to violence, the workplace is the most challenging and difficult to address' (UNICEF, 2014, p. 13). These children are more vulnerable to maltreatment than other workers, because they are easy to manipulate, intimidate or exploit due in part to their physical immaturity and inexperience.

Child labor is hard to define, however, The United Nations Children's Fund (UNICEF) stated that a child laborer is a person who is aged between 5 to 11 years and works at least 1 hour in any occupation or 28 hours in domestic work per week, or aged between 12 to 14 years, who works at least 14 hours in any occupation or 28 hours in domestic work per week or aged between 15 to 17 years and works at least 43 hours domestic/other work per week (Gibbons, Hebert, & McDuff, 2003). Studies report that children engaged in labor are more susceptible to physical maltreatment (Kandel, Kunwar, & Karki, 2017; Terre des Hommes, 2017) and verbal or sexual abuse either at their home or at the workplace (Terre des Hommes, 2017). Research in this area has been neglected, although, there are around 152 million child labourers globally. Of these, around 70.9% of child laborers are engaged in agricultural activities (ILO, 2017). Rural child laborers are mostly forced to work in the agriculture sector or as in domestic laborers. They are often subject to hazardous conditions and unsafe workplace practices (Siddiqi & Patrinos, 1995; Marlenga, Berg, Linneman, Brinson, & Pickett, 2007). The Asia Pacific region accounts for a large share of the 77.7 million working children (5-17 years) (ILO, 2013). Of these, 16.7 million are in South Asian countries; India (5.8 million), Bangladesh (5 million), Pakistan (3.4 million) and Nepal (2 million) (Khan & Lyon, 2015).

It is assumed that poverty and poor socio-economic conditions expose these children to maltreatment (Celik & Baybuga, 2009; Hadi, 2000; Basu and Pham, 1998). There is ample evidence that shows risk of negative consequences of child abuse including psychiatric disorders, and social disfunction (Currie and Cathy, 2010), but little is known about the long-term consequences of the maltreatment of child laborers. This research field is underdeveloped, with little integrated, or organized or systematized knowledge that can guide development programs and policies regarding this field (National Research Council, 1993; Institute of Medicine, 2014; Jud, Fegert, & Finkelhor, 2016). The key benchmarks for measuring the maltreatment of child laborers are still unclear because of the complexity of the subject.

## 1.2 Why Scoping Review

This scoping review uses the standard approaches to map the underpinning issues of maltreatment of child laborers. Triccco et al. (2016) stated that a scoping review is helpful for investigate emerging evidence in topics that are still unclear. They also suggest that a scoping review provides the foundation for future systematic reviews. A priori protocol must be developed before undertaking a systematic review (Aromataris and Riitano, 2014). The development of a protocol for a scoping review is important in order to increase transparency, validity or reliability of the research. An initial search of PROSPERO, MEDLINE, the Cochrane Database of Systematic Reviews and the Joanna Briggs Institute (*JI*) *Database of Systematic Reviews and Implementation Reports* was conducted and no scoping or systematic reviews were currently underway on the subject matter were identified. Therefore, we aimed to conduct this review of literature to determine the extent and nature of existing literature, to summarize the available evidence and to identify any gaps concerning the present characteristics of maltreatment against child labourers engaged in rural agriculture and domestic domain.

## 2. Methods

The proposed scoping review will be conducted in accordance with the Joanna Briggs Institute methodology for scoping reviews for effective evidence. The review will follow the Arksey and O'Malley (2005) suggested methodological framework that has been further refined by the JBI. The methodological framework has five sequential steps: 1) Identifying the review question, 2) Searching for relevant studies, 3) Selecting pertinent literature, 4) Extracting or charting the data, and 5) Collating, summarizing and reporting results.

### Step1: Identifying Review Questions

The overall question of this review is: To what extent and why do agricultural and domestic child laborers working in rural areas experience maltreatment resulting in adverse health impacts?

To map the evidence, the following sub-questions will be explored:

1. What does the existing evidence tell us about the nature and prevalence of maltreatment of agricultural and domestic child laborers in the four countries identified?
2. What are the crucial indicators responsible for the maltreatment of child laborers that have been evaluated across agriculture and domestic settings?
3. What are the documented adverse health and social outcomes that occur as a consequence of the maltreatment of child laborers?

### Step2: Searching For Relevant Studies

#### Inclusion and Exclusion Criteria

The 'inclusion criteria' are eligibility indicators that guide the reviewer. Based on these standards the pertinent sources or evidence will be selected for this scoping review. The present study's inclusion criteria incorporate the PCC (P: Population, C: Concept and C: Context) structure, which is recommended by the JBI for scoping reviews [Joanna Briggs Institute, 2019].

## Population

The review will consider studies that include children aged 5 to 17 years, parents or employers who are involved in agricultural, or domestic labor during the reference period, the years 1992 to 2020. These dates have been selected because, the International Program on the Elimination of Child Labour (IPEC) began its operation in 1992 with a mandate to end child labor. This program resulted in an increase in in-depth statistical and qualitative research (IPEC, 2010). The agriculture sector will comprise crop production, livestock farming, fish harvesting and processing and forestry-related occupations. The domestic labor sector will involve household chores. The review will exclude papers that include child laborers aged below 5 years and above 17 years.

## Concept

This review will consider studies that include any form of maltreatment of child laborers either at the workplace or at home that may impact on their physical or psycho-social health. The perpetrators would be their employers, co-workers or family members.

## Context

This review will consider studies that are conducted in the context of four South-East Asian countries (Bangladesh, India, Pakistan, and Nepal). These nations have similar profiles (medium human development) on the human development indexes (United Nations Development Programme, 2019).

## Type of Outcomes

This review will seek the following outcomes:

- Prevalence outcomes of child labor' maltreatment such as types, frequency distribution of these categories, and association between various forms of maltreatment.
- Cause-oriented outcomes, which may include both pull and push factors of maltreatment of child laborers (e.g., poverty, school dropout, cultural acceptance etc).
- Effect-oriented adverse outcomes of maltreatment of child laborers, for instance; burn, bruises or fracture related physical injuries, psychological or trauma related disorders, mortality, social isolation, suicide.
- Correlational outcomes including inter-cause association, cause-effect relationships.

## Type of Studies

This scoping review will consider both experimental and quasi-experimental research designs including randomized controlled trials, non-randomized controlled trials, before and after studies and interrupted time-series studies. Analytical observational studies including prospective and retrospective cohort studies, case-control studies and analytical cross-sectional studies will be considered for inclusion. This review will also consider descriptive observational study designs such as case series, individual case reports and descriptive cross-sectional studies. The systematic reviews which meet eligibility criteria, will also be considered in this scoping review.

Qualitative data will also be considered, such as ethnographic, narrative, phenomenology, grounded theory, case study or action research studies. The review will also consider grey

literature including conference proceedings, technical reports, government documents, newsletters, thesis or dissertations, research reports, media articles and working papers.

### **Search Strategy**

The search strategy will aim to locate both published and unpublished studies. An initial limited search of PubMed and PsycINFO was undertaken to identify articles on the topic. The text words contained in the titles and abstracts of relevant articles, and the index terms used to describe the articles will be used to develop a full search strategy for reporting the name of the relevant database (see Appendix 1). The search strategy, including all identified keywords and index terms, will be adapted for each included information source. The reference list of all studies selected for critical appraisal will be screened for additional studies.

### **Information Sources**

List of sources for all published peer-reviewed articles, books, dissertations and theses: Scopus, PubMed, Medline (via Ovid), PsycINFO (via Ovid), and ProQuest.

Sources of unpublished studies and grey literature will be the Web of science, Cochrane Library, Google Scholar, Websites of International Labor Organization ([www.ilo.org](http://www.ilo.org)), UNICEF ([www.unicef.org](http://www.unicef.org)), World Bank ([www.worldbank.org](http://www.worldbank.org)), World Vision ([www.worldvision.org](http://www.worldvision.org)), Save the Children (<https://www.savethechildren.org.au/>), Bachpan Bachao Andolan (<https://www.bba.org.in/>), Bangladesh Shishu Adhikar Forum ([www.bsafchild.net](http://www.bsafchild.net)), Ain o Salish Kendra ([www.askbd.org](http://www.askbd.org)), and Bangladesh Bureau of Statistics ([www.bbs.gov.bd](http://www.bbs.gov.bd)). Additionally, the research team will search websites of child welfare related organizations in India, Pakistan and Nepal. An advanced hand search on Google will also be performed to reach newspaper websites. The Google search will be limited to the first five screen shots or pages.

### **Step3: Selecting Pertinent Literature**

Following the search, all identified citations will be collated and uploaded into EndNote and duplicates removed. Titles and abstracts will then be screened by two independent reviewers for assessment of retrieved records against the inclusion criteria for the review. The rationale of exclusion of titles and abstracts through screening will be recorded in the review.

The full text of selected citations will be assessed in detail against the inclusion criteria by two independent reviewers. Reasons for exclusion of full text studies that do not meet the inclusion criteria will be recorded and reported in the scoping review. Any discrepancies that arise between the reviewers at each stage of the study selection process will be resolved and a decision reached through discussion, or with a third-party reviewer. The results of the search will be reported in full in the final review and presented in a Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) flow diagram (Aromataris & Riitano, 2014).

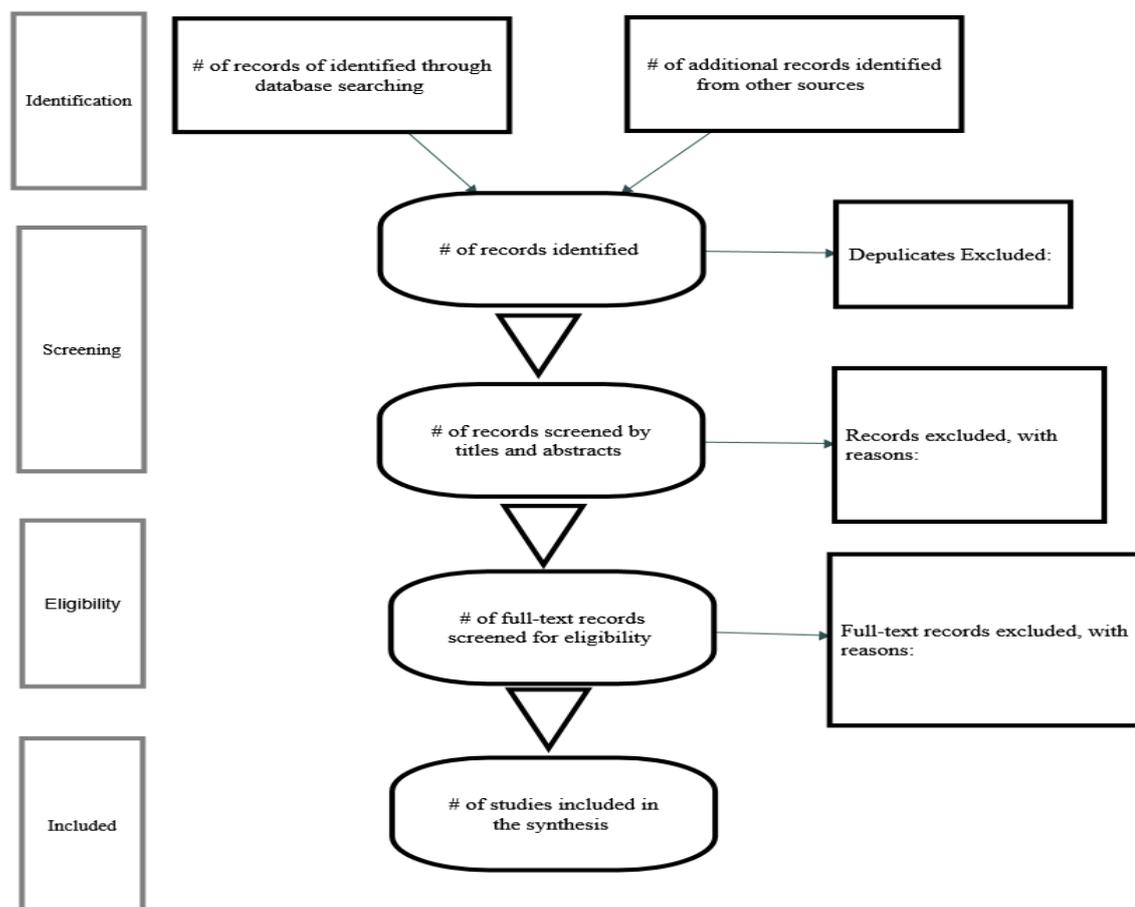


Figure 1: Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) Flow Diagram

#### Step4: Extracting or Charting the Data

Data will be extracted from studies included in the review by two independent reviewers using the standardized data extraction tools developed by the research team (reviewers).

The data extracted will include specific details concerning the study type, population, concept, context, methodology, and outcomes of study pertinent to the review objective. Any disagreements that arise between the reviewers will be resolved through discussion, or with a third reviewer. Authors of papers will be contacted to request missing or additional data, where required. A draft data extraction table with domains is provided (see Appendix II). The modification or refinement of the draft charting or extraction table will be completed by two reviewers based on the discussion and feedback for consistently. The refinement or the revision process of the extraction table will be detailed in the scoping review report.

#### Step5: Data Collating, Summarizing, and Reporting Results

If extracted data are found in quantitative studies, they will be combined in a meta-analysis using JBI SUMARI. Effect sizes will be expressed as odds ratios and the 95% confidence intervals will be calculated for analysis. Heterogeneity will be assessed statistically using the standard chi squared and I squared tests. Statistical analyses will be performed using multiple

regression. Where statistical pooling is not possible the findings will be presented in narrative form including tables and figures to aid in data presentation where appropriate. A funnel plot will be generated to detect publication bias if there are 10 or more studies included in a meta-analysis. Statistical tests for funnel plot asymmetry (Egger test, Begg test, Harbord test) will be performed where appropriate. SPSS (version 26) will be used for statistical analysis.

Where extracted data retrieved is qualitative in nature, studies will, where possible be pooled into a narrative account and advanced qualitative analysis provided. The quality indicators identified and extracted data will be analysed and synthesized using the reflexive thematic analysis of child labor maltreatment. The Braun & Clarke, (2006) suggested six thematic steps will be adopted in synthesising data including familiarization with the data, generating initial themes, searching for themes, reviewing themes, defining and naming themes and producing the report. The identified themes or patterns will be presented through a concept map. NVivo (version 12) software will be used to generate quality patterns or themes.

Of note, following the methodological framework of this scoping review protocol, a review paper has been published recently in the *Journal of Child Abuse and Neglect* (Ahad, Parry, & Willis, 2021). This paper investigated the prevalence, risk factors and impact of the maltreatment of child laborers. The prevalence measure resulted that psychological maltreatment is highly prevalent followed by sexual abuse, physical maltreatment, and neglect. The thematic synthesis of the extracted data from these limited retrieved studies further depicted that social and demographic characteristics, economic challenges, socio-cultural and power structure, dysfunctional immediate environment are the principal indicators of child labor maltreatment both at home and workplace environment. This proportional analysis of the DSM (Diagnostic and Statistical Manual of Mental Disorders) symptoms criteria revealed that the maltreated child laborers have been suffering mostly from specific phobias, social phobias, conduct disorders, and obsessions (Ahad, Parry, & Willis, 2021). It is understood that the identified gaps suggest further research on the intentional violence of child laborers.

### **3. Conclusion**

This protocol is a guideline to accomplish a systematic scoping review of literature on the maltreatment of child laborers. The findings of this scoping review will assist in understanding the problem and identifying the research gaps and guide prospective research in focusing on prospective policies.

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## Appendices

### Appendix I: Search strategy

The combined key words are (('child labour' OR 'working children' OR 'children in hazardous job' or 'agricultural child labourer' OR 'domestic child labourer') AND ('child' OR 'under-age' OR 'adolescent') AND ('work' OR 'labour' OR 'labor') AND ('adverse childhood experiences' OR 'child abuse' OR 'physical abuse' OR 'psychological abuse' OR 'sexual abuse' OR 'workplace violence') AND ('abuse' OR 'violence' OR 'maltreat' OR 'ill-treat' OR 'ill-used') AND ('Bangladesh' OR India OR Pakistan OR Nepal)).

Name of the databases: Scopus, PubMed, Medline, PsycINFO, ProQuest, Web of science, Cochrane Library, and Google Scholar.

### Appendix II: Data extraction instrument

Structure / Key domain	Extracted information which should be listed in the data collection sheet
General information	<ul style="list-style-type: none"> <li>• Author, Title, Year of publication, Journal (if required), Country, Language</li> </ul>
Study features	<ul style="list-style-type: none"> <li>• Aim/purpose</li> <li>• Theoretical / conceptual framework</li> </ul>
Context of research	<ul style="list-style-type: none"> <li>• Research study area/geographical setting of the data taken</li> <li>• Subject/discipline-oriented context</li> </ul>
Study design	<ul style="list-style-type: none"> <li>• Randomized Controlled Trials</li> <li>• Non-randomized controlled trials, cohort, observational, cross-sectional, longitudinal studies</li> <li>• Single or multi-centre study</li> <li>• Qualitative studies</li> <li>• Grey literature</li> </ul>
Setting and Population	<ul style="list-style-type: none"> <li>• Socio-demographic characteristics (sex, age, ethnic background, occupation etc)</li> <li>• Sample size in numbers</li> </ul>
Qualitative or quantitative analytical technique	<ul style="list-style-type: none"> <li>• Grounded theory, phenomenology, content analysis, thematic analysis</li> <li>• Linear regression model, logistic regression model</li> </ul>
Type of maltreatment	<ul style="list-style-type: none"> <li>• Physical, Psychological, Sexual, Neglect or others</li> </ul>
Quality appraisal (If required)	<ul style="list-style-type: none"> <li>○ <u>Randomized controlled trial</u> <ul style="list-style-type: none"> <li>• Appropriateness of randomization</li> <li>• Comparability of groups at baseline</li> <li>• Completeness of the outcome data</li> <li>• Blinding of the outcome assessors</li> <li>• Adherence of the participants to the assigned intervention</li> </ul> </li> <li>○ <u>Non-randomized controlled trials, cohort studies, observational</u></li> </ul>

	<ul style="list-style-type: none"> <li>• Representativeness of the participants of the target population</li> <li>• Appropriateness of the measurements regarding both the outcome and intervention (or exposure)</li> <li>• Completeness of the outcome data</li> <li>• Consideration of the confounders in the design and analysis</li> <li>• Administration of the intervention (or exposure occurred) as intended during the study period <ul style="list-style-type: none"> <li>○ <u>Cross-sectional, longitudinal studies</u></li> </ul> </li> <li>• Relevance of the sampling strategy to address the research question <ul style="list-style-type: none"> <li>• Representativeness of the sample of the target population</li> <li>• Appropriateness of the measurements</li> <li>• extent of risk of nonresponse bias</li> <li>○ <u>Qualitative studies</u> <ul style="list-style-type: none"> <li>• Qualitative methods used</li> <li>• Phenomena of interest</li> <li>• Data analysis technique and procedure</li> <li>• Key themes</li> </ul> </li> </ul> </li> </ul>
Key findings	<ul style="list-style-type: none"> <li>• Type and prevalence of maltreatment-oriented outcomes</li> <li>• Cause-oriented outcomes</li> <li>• Effect-oriented adverse outcomes</li> <li>• Correlation/association-oriented outcomes</li> </ul>
Remarks	<ul style="list-style-type: none"> <li>• Strength, weakness</li> <li>• Other information</li> </ul>

## ***Impact of the Covid-19 Pandemic on Taiwan's Art Education***

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Official Conference Proceedings

### **Abstract**

COVID-19 has caused a global pandemic crisis. The pandemic presented society with numerous changes and issues due to the shift in lifestyles, among which is the greatly impacted school education. To receive a complete range of educational resources without contacting other groups in the population, many curriculums were transformed to online learning using technological applications and incorporation. Given the impact of the pandemic on Taiwan being relatively controlled than other countries, on-campus classes remain the primary approach in school education. However, an outbreak of cluster infection in Taiwan this May worsened the epidemic crisis. The Ministry of Education urgently announced the halt of all on-campus classes, therefore forcefully changed Taiwan's model of education. With students' practice with actual materials being emphasized in teaching art curriculum and the provision of software and hardware being relied upon, art curriculums face greater challenges to adopting distance learning. Other than considering ways to use online learning resources to reach integrity in educational content, teachers also need to enhance abilities in applying technologies and designing curriculums, when different approaches and concepts are required to make adjustments and trials, especially regarding class and curriculum management. This qualitative research was used to study a interview with public junior high school and high school art teachers in Taiwan. Intends to grasp a picture of the forms and model of art curriculum in Taiwan at secondary education levels during this pandemic to explore and reflect the possibilities for art education in the post-pandemic era.

Keywords: Post-pandemic era, Art Education, Taiwan

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## **Introduction**

### **1-1 Research Background**

Covid-19 broke out at the end of 2019. Many countries have begun to order the closure of cities to avoid crowd contact with large numbers of people. These policies have not only caused changes in society, families, and lifestyles, but also school education: students cannot go to school for physical teaching.

Distance teaching became the main teaching strategy in the epidemic, and it has also prompted the education community to pay more attention to the importance of distance teaching, which became one of the most important issues in today's educational thoughts.

Since the epidemic has spread, Taiwan was originally affected by the epidemic less than other countries. Schools could still maintain physical classes. Until May 2021, serious cluster infections occurred in Taiwan, causing the number of confirmed cases gradually expand.

To prevent campuses from becoming a place for the spread of the epidemic, the Ministry of Education urgently announced that students at all levels would stop attending schools. As a result, Taiwan's education pattern is also facing a mandatory change. In this regard: schools, teachers, students, and parents all needed to adjust and adapt to the measures of distance teaching in a short time, and move towards a digital learning path of "Learning Never Stops" together.

Although distance teaching solved the limitations of time and space, it has also encountered many difficulties. For example: first, some students are easy to lose their learning direction. Second, the construction of the knowledge structure is incomplete. Third, the interaction between students and peers and teachers is limited, and they need to explore how to the use of technological tools, etc. (Lin, 2005)

With students' practice with actual materials being emphasized in teaching art class and the provision of software and hardware being relied upon, art curriculums face greater challenges to adopting distance learning.

### **1-2 Research Motives**

Under the influence of the epidemic, Taiwan urgently announced the suspension of classes, causing many teachers to change to the remote teaching mode at such short notice. The Art classes always relied on physical teaching, also face many challenges. Researchers observed the strategies and methods of an art teacher facing online teaching, as well as the mentality of facing difficulties, which helped art teacher in Taiwan to apply distance teaching.

### **1-3 Research Objectives**

This research uses interviews with two art teachers as individual cases to understand how they faced the transformation of online teaching methods and situations during the epidemic. The research objectives of this study are divided into the following:

1. Understand Taiwan's policy on distance education
2. How art teachers arrange and implement distance teaching
3. Implementation status and advantages and disadvantages of distance courses

#### 4. Evaluation method and implementation effectiveness

##### 1-4 Scope and limitations

1. The case study cannot represent the teaching situation of all schools in Taiwan

It's for reference only.

2. The situation of the epidemic has changed greatly during this research period, and the policies and content mentioned in this research may not be fully applicable to future curriculum development.

## Literature Review

### 2-1 Characteristics of Distance Education

Distance Education refers to a model that is different from the general traditional physical teaching, breaking through the limitations of time and space, allowing learning to exist at different times and places, and is divided into two types: synchronous and asynchronous. According to Tang (2011), the definition of integrated distance teaching is a teaching process that uses media to deliver systematic teaching materials to learners. Teachers, teaching materials and students, can communicate and interact to achieve the expected educational goals. And remote teaching is divided into one-to-one teaching, one-to-many teaching, and classroom-to-classroom teaching.

Keegan (1990) believes that interaction is the main key in distance education, and proposes that distance education has the following five characteristics:

1. Distance teaching in the learning process, teachers and learners are separated for a long time, which is different from traditional face-to-face teaching.
2. The design and preparation of learning materials, as well as the two aspects of providing student services, are different from personal learning and teaching oneself.
3. Use scientific and technological media such as printed textbooks, audio-visual media, or computers to transmit teaching content to connect teachers and learners.
4. Provide two-way communication so that students can benefit from it or even drive dialogue.
5. There is a lack of similar long-term learning groups throughout the learning process, so learners are often treated as individuals rather than groups.

Based on these five characteristics, in distance teaching courses, the communication and exchange between teachers and students is the key to the important influence. The characteristics of distance teaching should be considered in the course design, not just the arrangement of traditional courses.

### 2-2 Taiwan's Education Policy under the Epidemic

In January 2020, the Ministry of Education of Taiwan issued the precautions for the epidemic to schools at all levels for the first time. At that time, it used the "unknown cause of pneumonia epidemic" as a reminder, and at the end of the month reminded schools at all levels to set up an "epidemic prevention team" as soon as possible. Each school is required to submit relevant plans to the Ministry of Education. At the beginning of the epidemic in

Taiwan, due to the rapid establishment of cautious and strict entry restrictions and isolation policies, most of the confirmed cases were imported from abroad, and Taiwan's international control of the epidemic was relatively stable.

In August 2020, conditions gradually allowed for foreigners and overseas students to come to Taiwan. Until the beginning of 2021, schools at all levels in Taiwan have adopted physical teaching as the main teaching mode, but the Ministry of Education still reminds schools to take protective measures at any time. It also supervised schools to conduct remote teaching drills for successively drafts and followed the epidemic policies. Adjustments include the formulation of detailed items such as relief projects, student internships, and large-scale examinations.

In May 2021, Taiwan suddenly broke out of multiple local cases. The Epidemic Command Center announced on May 19 that Taiwan has officially entered the level 3 epidemic alert. The Ministry of Education has explicitly ordered all schools at all levels to change to "home online learning", and emphasized that courses can be mixed in a synchronized or non-synchronized manner. It also authorizes schools to handle courses, teaching, and assessment methods in a flexible and diverse manner. In addition, the Ministry of Education also provides online learning resources, including films, TV programs, learning platforms, websites for teaching materials, etc.

The level 3 epidemic alert lasted for two months. Due to the increase in vaccine coverage and the decline in the number of confirmed cases, it was downgraded to level 2 alert on July 27. The Ministry of Education announced the physical opening of school in September was allowed. At present, Some colleges and universities still use online teaching for several weeks, and then switch to physical teaching gradually.

## **Results and Discussion**

This research uses a middle school art teacher and a high school art teacher as the interview subjects. The following will be based on the content of the interviews with the two art teachers to understand the situation of the remote teaching of art classes in their respective schools.

### **3-1 Case of Ke: Preparation and Confrontation**

Last year, at the onset of the epidemic, schools arranged for teachers to learn how to use Google Classroom on a regular basis. However, teachers tend to forget how to use it when they can still conduct in-person teaching. Although these online platforms keep updating and schools still provide regular training, over time, it becomes clear that many teachers reject technology applications, giving special prominence to the learning gap among teachers.

After the switch to distance learning, teachers have more flexibility in conducting distance learning in response to the government's flexible measures for allowing the use of non-simultaneous teaching. Ke said some art teachers would adopt the digital teaching materials provided by textbook suppliers to help teachers who are less skilled in the use of technology to successfully engage in distance learning.

The classes that Ke teaches fall into two types: art classes and regular classes. The following is an explanation of how Ke conducts his teaching in these two types of classes.

### 3-2 Distance learning in Art Classes

The art class mainly emphasizes the practice of drawing and copying skills. In the absence of in-person instruction, Ke employed the electric drawing function of the tablet computer and used an electronic brush that can express various textures and color ramps to help students modify their drawings and demonstrate how to do so during the online class.

Ke said that by using this kind of remote teaching, she solved the problem of one-on-one instruction in the physical classroom. While she was modifying students' works, other students could also learn and observe what she was doing, which solved the problem of differential teaching for students.

After her students have finished copying the photos provided by her, Ke would ask them to go online to find similar pictures to drill their skills so that they could observe the similarities and differences in details in the pictures.

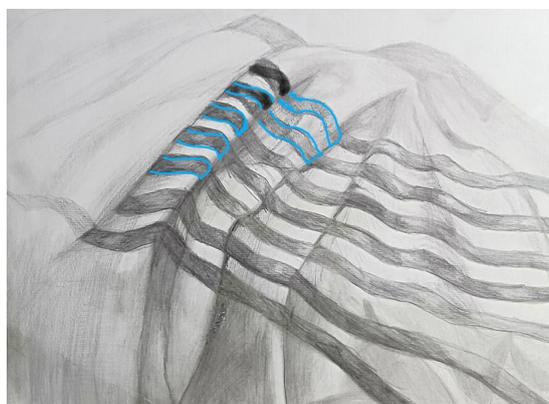


Figure1: Example of Ke's Use of Table Computer to Modify Student's Sketch Works

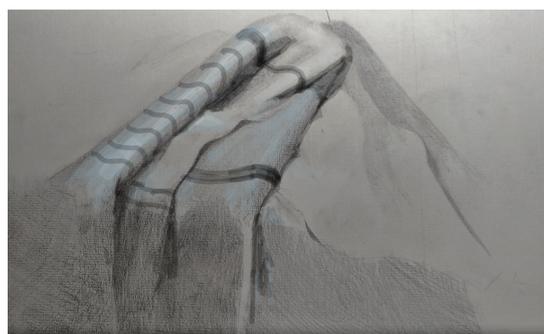


Figure 2: Example of Ke's Use of Table Computer to Modify Student's Sketch Works

### 3-3 Distance Learning in General Classes

For the Art Appreciation course, Ke moved the original classroom Q&A to an online course. Since the classroom sessions emphasize interaction with the students, there is no great difficulty in using the materials as long as the teacher is familiar with the operation and switch of the video conferencing software.

It is a big problem to keep track of the students' attendance status in real time. At first, Ke used the Jam board function in Google Meeting, but due to the limitation of data capacity and

inconvenience of physical writing, it could only be used in classroom games. Ke thought that it was not enough, so she used the Google Slides, which can be edited online, and arranged a presentation file according to each student's seat number. In online class, students were asked to put the information they found or their assignments in the presentation, so that the teacher could read each student's work right away. For example, in the unit "Forest Magic House", the main objective is to understand the integration of ecology and public art. Ke would ask students to discover the public art in their hometown and copy the pictures on the presentation to be used as the assessment mark for the class activity, so as to enhance students' concentration in the class.

In the physical creation activities, students were assigned to use materials such as PET bottles, clay, and pigments to create their work. During the class, students were asked to turn on the camera for the teacher to monitor their work and to respond to their questions in a timely manner. "Even if a student fails to provide an immediate image, he or she can catch up with the progress during the week, so we only need to keep him or her on track," said Ke.



Figure 3: Example of Ke's Student Use Google Slides to Accordworks.

### 3-4 Advantages and Challenges of Distance Learning

Ke believes that distance learning offers students and teachers the opportunity to learn to trust each other, but the trusting relationship still needs to be built through physical classes. "A compliment from me in an online class may not be as powerful as a pat on the shoulder in a physical class," she said. Despite the initial difficulties in implementing distance learning, it has instead helped teachers to develop the ability to adapt and respond at any time. It also puts teachers' professionalism to the test. Moreover, it enables students to build up the ability of independent learning, integration of learning files, and resource utilization in the field of art. It is more important to open students' interest in learning than to provide rich teaching materials and content. However, distance learning also has its difficulties. Some students coming from poor economic conditions and incomplete family functions, the equipment and materials required for online teaching may be a burden to them. Ke says schools need to show more concern and understanding when dealing with such students, and provide support when feasible. These problems are not only encountered in art classes, but also in other courses where distance learning is implemented.

#### **4-1 Case of Gao: Preparation and Confrontation**

The following will explain the distance teaching of high school.

At the beginning of the epidemic last year, the school had a fixed arrangement for teachers to learn how to use google classroom. In response to the government's subsequent announcement of distance teaching, the school opened google classrooms for various subjects and hoped that teachers could follow the original schedule. For courses, the school also provides a live broadcast space, so that teachers have the most direct teaching space to use. Gao said that before the formal remote teaching, all students were invited to disperse in other spaces to practice remote teaching. Therefore, they already have a basic understanding of the equipment and displays needed, but they have a basic understanding of the need for remote teaching. Teaching inevitably feels nervous, and because the change is too immediate, it is impossible to adjust the original course content in the early stage, but after adapting, it can gradually teach based on the characteristics of distance teaching.

#### **4-2 Teaching Equipment**

Gao has three equipments to prepare for remote teaching, one for monitoring screen, one for playing slides, and one camera. It may be two computers and one mobile phone, depending on what equipment was configured at home or school.

In terms of software, the high society uses google jamboard, Mirror, Russian roulette and other functions to help the teaching activities.

#### **4-3 Teaching Situation**

Gao said that he divided the remote teaching of art classes into four steps (W-O-R-K), which are Warm up, Oral Presentation, Reaction, and Keep. Warm-up is the pre-class preparation stage, which handles roll call and leads activities to improve students' concentration in class. Development to formally enter the course teaching, as well as question-and-answer activities and group discussions.

At the end of the course, it enters the stage of creative practice or oral presentation to facilitate the integration of the course. Gao takes the "Text Artist" in the first year course of high school as an example. The following will explain the details of the course: In the preparation stage, Gao uses the relevant content of the famous Taiwanese picture book-love letter as a pre-class guide to understand the visual image and connotation given by the text . Gao invites students to collect various types of advertising text, discuss them in class, and classify them together, such as: what type of font is visible, readable, or what situation the text is suitable for. After the students have a basic understanding of text design, the course enters the practical stage. The high-level practical photography demonstrates the process of font design. After that, the students start the design exercises. The high-level conference asks the students to turn on the camera to check the progress, and encourages the students to ask questions at any time. After students complete their work, they will take photos and store them in the cloud, and record the time of submission. Gao can directly view the student's work through the cloud to give a score. Gao said that the most important thing in remote teaching for art classes is to consider the ease of obtaining media, so all this class needs is

paper and markers. If more materials are needed, teachers can consider making a package of materials and sending it to students.

In addition, Gao also has a part-time university printmaking course, which requires practice. Gao will demonstrate with a physical camera, and use online resources and media to discuss with classmates how to create and exhibit. Gao encourages students to break through the thinking of creating prints in the past. If the equipment is insufficient, how to use the unique characteristics of prints to create?

#### **4-4 Advantages and Challenges of Distance Learning**

Gao believes that the experience of this distance teaching is good. He believes that this way of teaching is very convenient. There are more adequate preparations and strategies, or the effectiveness of the course will not be compromised. The students said that the online art class is very interesting, because they had enough time for discussion and games, there was no worry about additional preparation for the actual media. But as we know, students' classroom conditions need to be inspected and tracked more carefully, "This is the most difficult thing to master in distance teaching, so a lot of interaction is really important." Because distance teaching is really important. Overcoming the limitations of time and space, and reducing the cost of learning, you can invite experts from different time zones and regions to attend classes or seminars, which was difficult to happen in the past. Gao believes that he has a new way of thinking in teaching materials and curriculum design, and that art teachers have more room for change in the choice of practical equipment. Classrooms also no longer rely on traditional narration methods. Because of the change of teaching rhythm, teachers need to provide students with more space for activities and publications in order to make online teaching more active. Therefore, students have many opportunities for independent learning. Such diverse teaching methods can conform to the "literacy-oriented" education. The cutting and structure of the course period also need to be planned before the class, so that students know in advance what they should do at what time, it can reduce the extra time that many classes need to adapt and adjust.

Gao also mentioned that "ICT" is gradually being implemented in such distance teaching. In the past, students were often asked to use sticky notes in the courses discussed, but it was more environmentally friendly and efficient after switching to online. Including study sheets and teaching feedback, all of them can be replaced with online questionnaires. Compared with paper, teachers can get information in real time. "Appropriate use of technological resources can help teachers maintain interaction with students, and can also transform many physical teaching strategies." Gao said.

#### **Conclusion and Suggestions**

Even if there is no epidemic, the trend of using information in education is inevitable. It may not be a negative thing to have this opportunity to promote it. The researcher believes that most teachers in Taiwan have a very positive attitude toward distance learning and are very willing to share resources. In the case of Ke and Gao, they are remarkable to point out the advantages of distance learning to counter the misconception that art teaching may not be effective in distance learning.

In the art class of distance teaching, teachers need to pay more attention to the convenience of students to obtain materials and the arrangement of learning activities.

Teachers should also adopt a more flexible and open mind in distance teaching to make students more interested in class. In addition to the suggestions and problems put forward by the researchers above, there are many possibilities and discoveries hidden, which can be completely overcome through the accumulation of experience in teaching practice.

The researcher organizes several important items in the distance teaching of art class.

### **1. Arrangement of Learning Activities**

Different from traditional physical teaching, distance teaching breaks the limitations of time and space, and is more flexible in the number of sessions and teaching methods. In the past general teaching of interdisciplinary courses, due to the division of subjects and sections, there are often many limitations in the implementation. Through distance teaching, teachers of different subjects in the school have the opportunity to cooperate with each other, and they can also be more supportive and assisted in class management and management of distance teaching, and it is easier to achieve the goal of collaborative teaching. By strengthening cross-subject links and appropriate activity arrangements, it can also solve the physical and mental burden caused by long-term use of computer screens in distance teaching, and strengthen students' willingness and motivation to learn.

### **2. Course Materials and Resource Utilization**

In art courses, a large number of practical activities are usually emphasized. When implementing distance teaching, making good use of resources is a very important part of distance teaching. Regardless of physical textbooks, digital textbooks, web-based textbooks, etc., students need to consider the conditions of their equipment and resources to avoid unequal learning opportunities. During the epidemic, many textbook publishers in Taiwan have opened remote teaching aid websites for teachers, students, and parents to use such websites to obtain learning resources. The content includes textbooks, course videos, animations, quizzes, interactive games, etc. The combination of resources makes the learning content more perfect. In addition, many art galleries and museums at home and abroad have developed multiple online learning resources. Teachers can use these online resources to facilitate topic-based discussions. In addition to allowing students to have more specialized research on art-related issues, they can also help students develop the ability to learn independently, communicate with peers, and integrate information. For the media creation part, when resources are limited, students are encouraged to make good use of materials available in the environment and to strengthen creative concepts and narrative skills through examples. For example: use the dinner time at home to practice visual aesthetics, use mobile phones to practice photography and synthesis, and strengthen the understanding and application of conceptual art.

### **3. Equipment for Teaching**

According to the distance teaching curriculum and online teaching guidelines of universities and colleges (Ministry of Education, 2020). Computer, camera lens, headset, microphone and internet are the basic software and hardware required for online teaching. In the case of remote teaching, it is recommended that teachers establish additional connection and communication channels to communicate with students, so they can communicate with students immediately to avoid unexpected situations that may lead to failure to contact. The school administration should provide support to teachers and students in remote teaching. It is

recommended to record and archive with the consent of the participants during the synchronization course, so that students who cannot participate in the course immediately and have limited equipment conditions can have other forms of learning. In the teaching of art courses, in addition to using presentations and picture playback for narration, pre-recording or using the second camera lens to directly perform equipment operation demonstrations or physical projections can be used in the practical course demonstration. It is recommended to proceed before the course Provide students with a preview of the operating procedures of the documents, so that students have to watch the teacher's operation after they have a preparatory concept, and strengthen the practical concept and course focus. At present, most video software that meets the functions required for teaching, most have functions such as grouping, whiteboard annotation, text recording, screen sharing, and raising hands to speak. There are also many remote software that add interactive interfaces such as game elements and social activities. For example, many arts and cultural events are held through Gather Town during the epidemic. Teachers can use similar websites to allow students to browse, or encourage students to hold online exhibitions together, understanding that online exhibitions are not just about putting their works on the Internet. It also requires different thinking and creativity.

#### **4. No Longer Based on Skills Training**

The demonstration of media training and techniques in the distance teaching of art courses can be supplemented by pre-recorded teaching videos in addition to online synchronization teaching, with text explanations to strengthen reminders and precautions. However, this presentation method is still different from the effectiveness of the physical curriculum. In addition to the color, angle, and implementation process, the details are not accurately presented. Students are likely to have difficulty concentrating because they are not in the physical teaching situation. Teachers may also Due to the inability to provide immediate guidance, the teaching and learning effectiveness cannot be perfected. Since the implementation of distance education in Taiwan is a top priority under the epidemic, teachers may not be able to complete the preparation of teaching software and hardware facilities and course materials. A more flexible and open design should be adopted in the main body of the curriculum, which also allows students to be more engaged in the study of the art field.

#### **5. The Establishment of a Learning Network**

Distance teaching is a new attempt for art teachers in many schools. Many resources are needed to support the implementation of the course. It is necessary to find professionals in different fields to build a network together, such as the use of professional software and hardware, distance teaching techniques, and distance teaching. The way of evaluation, the status of distance teaching in each school, and the exchange of knowledge, technology, and experience will help teaching innovation and guidance. In addition, the construction of an interactive platform with students and parents will also help the curriculum to have a more complete development. It can also help students to learn in the field of art through distance teaching .The art courses under the epidemic situation, encourage self-growth, and achieve the goal of “Learning Never Stop“.

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***A Tool to Assess the Quality of Self-learning Modules (SLMS) for the ‘New Normal’ in Education Using the Best-worst Method***

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**Abstract**

In this paper, a tool to assess the quality of self-learning modules (SLMs) was developed using the Best Worst Method (BWM) by Rezaei (2015). Four major quality criteria namely Content (*weight = 0.603*), Instruction (*weight = 160*), Technicality (*weight = 0.097*), and Ethical and Cultural Considerations (*weight = 0.140*) were established through the perspective of expert respondents and suggestions from literatures. Among these, Content is the most important. Nine sub-criteria for Content, Instruction, Technicality, and three for Ethical and Cultural Considerations were instituted, all of which were also analyzed for a best or most important sub-criterion. Complete coverage of the competencies (*weight = 0.200*) is the most important for Content; contextualization (*weight = 0.258*) is the best for Instruction; systematic and logical arrangement (*weight = 0.189*) is the most vital for Technicality; and indirect introduction of values and etiquette (*weight = 0.465*) is the most crucial for Ethical and Cultural Considerations. Real-life application of the tool proved that it can be used in comparing SLM quality. However, if the goal is not to compare, then the identified weights of each sub-criterion can assist educators in identifying which aspect can change or improve the quality of SLMs from each major criterion. This being said, results of this paper can be used to improve the over-all quality of SLMs being used in the implementation of the modular or blended learning approach. The assessment tool can also be applied to other instructional and learning materials such as textbooks, handouts, and presentations, among others.

Keywords: Assessment Tool, Self-learning Modules (SLM), New Normal, Education, Best-worst Method (BWM)

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## Introduction

With the COVID-19 pandemic affecting almost all essential sectors of society, education is devastated. The health crisis left educational institutions no choice but to close to prevent the further spread of the virus. As estimated, more than 1.5 billion students globally were affected by the closures of schools and universities (Obana, 2020). Despite this, the teaching and learning process continued for some, albeit virtually, a move favorable only to nations with adequate telecommunication infrastructures and easy access to computers and mobile technology. For nations that cannot support and sustain virtual distance learning, *blended distance learning* was implemented, as in the case for Philippine public schools. This approach utilizes available technologies such as mobile phones, computers, radio, television, and self-learning modules (SLMs).

Since Academic Year 2020-2021 opened, the shift to blended distance learning has been of much debate in the country, particularly regarding the quality of learning modules distributed to the students. Reports have emerged complaining about the numerous errors and discrepancies in the contents of SLMs and the educational videos curated by the Department of Education (DepEd) and aired through their partner TV network. Most of these errors are factual and computational or equation-related, as one article (Magsambol, 2020) cited. Other people had even reached out through social media, stating that classes should be halted. The system itself is not ready for the 'new normal' challenges in the educational landscape. In response, the Department of Education said that they would issue errata for SLMs, according to a report (Ronda, 2020).

Developing student learning modules and other instructional and learning materials is difficult (Campbell, 1999). Their relevance can influence instruction quality (Fuller, 1986), which directly affects students' learning and academic performance (Tety, 2016). Moreover, instructional resources are teachers' strategic elements in planning and delivering education because they explain concepts that teachers could not (Oni, 1992). This being said, better learning materials and services are needed to improve education quality, efficacy, and productivity (Likoko et al., 2013).

Their quality is challenged even further considering the vitality of instructional and learning resources like self-learning modules in the teaching-learning process. Education sits on an unfamiliar landscape due to the COVID-19 pandemic. In the blended learning approach implemented in the Philippines, SLMs are delivered to students, parents, or guardians personally by the teacher or through the assistance of the Local Government Units (LGUs) (Dangle & Sumaoang, 2020). Unlike in face-to-face classes where resources like textbooks are just supporting elements in teaching because most of the instruction process lies solely on the teacher, a large part of education in the COVID-19 era is given to the parents, the students themselves, and the self-learning modules (SLMs).

This means that independent study dominates today's educational context since students should learn on their own because face-to-face classes with a teacher is not possible yet. With little or no help from others, the learners progress on their own. Disadvantages of SLMs, as one paper (Dangle & Sumaoang, 2020) cited, is its implication of requiring students to exert greater self-discipline and motivation, increased preparation time and lack of rewards for teachers, and more significant resources needed for the production and distribution of SLMs.

Given the considerable importance of SLMs and considering the issues surrounding their quality during the implementation of the blended distance learning approach in the Philippines, this paper aims to propose a tool to assess SLM quality by objectively identifying quality metrics and their relative importance through the Best-Worst Method (BWM). The Best-Worst Method (BWM) is a multi-criteria decision analysis method developed by Rezaei (2015). The set of criteria that will be identified can be used as a standard model in assessing SLMs and other instructional and learning materials. The results of this paper can help educators identify the critical criteria or characteristics needed to produce a good quality self-learning module. By doing this, effective and productive instruction can be achieved even in the absence of face-to-face or in-person classes.

### **Objectives of the Study**

This study aimed to develop a tool that can be used in assessing the quality of self-learning modules (SLMs) being distributed during the implementation of blended distance learning in the Philippines. Specifically, this paper sought to identify criteria that defines the quality of SLMs and determine their weights or degree of importance using the Best-Worst Method (BWM). Besides, this study also aimed to apply the tool that will be developed in assessing SLMs through a pilot assessment to prove that it can be used for the said cause.

### **Methodology**

#### **Research Design**

The quality of self-learning modules' assessment can be framed as multi-criteria decision-making (MCDM) problem, which requires a multi-criteria decision analysis method. MCDM methods allow for criteria to be defined and be given weights. While there are multiple MCDM methods available, this paper used the Best-Worst Method (BWM) developed by Rezaei (2015). Compared to other existing methods, the Best-Worst Method requires less comparison data because it does not need a full pairwise comparison matrix (Salimi & Rezaei, 2018). Due to its structured pairwise comparison system, it produces more reliable results than the other methods. The BWM has been successfully used in various studies such as evaluation of scientific outputs (Salimi, 2017), assessment of risk (Torabi et al., 2016), measuring the efficiency of Ph.D. papers (Salimi & Rezaei, 2016), and management of water scarcity (Chitsaz and Azarnivand, 2016), to name a few. Its application in assessing instructional and learning materials specifically SLMs, on the other hand, is new.

#### **Research Respondents**

The first step in the Best-Worst Method (BWM) is determining a set of quality metrics through collecting perspectives from expert respondents and suggestions from literatures. To gather professional opinions regarding what criteria or characteristics define the quality of a sound self-learning module (SLM), 15 education experts from various institutions in the Province of Oriental Mindoro were purposively selected and given questionnaires. Similarly, expert respondents are also needed in conducting the second, third, and fourth steps of BWM. Given this, another set of 15 education experts were selected and as well given questionnaires. Details of the steps mentioned are discussed comprehensively in Data Analysis.

## Data Collection

Two sets of questionnaires needed in BWM were formulated in this study. The first set of respondents was given the first questionnaire, including a personal data form and a single question inquiring on their perception of what sub-criteria or characteristics define an excellent learning module. Following Lemmer et. al. (2008), three significant criteria namely, content, instruction, and technicality, were pre-determined for the respondents to base their perceptions on. An ‘others’ category was also included; this is for the respondents to write the sub-criteria they think do not fall under the three pre-determined major criteria. On the other hand, the second questionnaire was given to the other set of expert respondents mentioned. Similar to the preceding questionnaire, it also includes a personal data form. However, this one contains highly-structured questions, which are needed to establish a Best-to-Others and Others-to-Worst vectors following the steps in BWM. Details on this step are highlighted in Data Analysis. Both questionnaires were distributed online through Google Forms.

## Data Analysis

The steps of BWM are as follows:

**Step 1.** Determine a set of quality criteria. In this step,  $m \{I_1, I_2, \dots, I_m\}$  quality metrics or decision criteria are identified. These can be presented at different levels.

**Step 2.** Determine the best  $B$  (e.g. most important, most desirable) and the worst  $W$  (e.g. least essential, least desirable) quality criteria or sub-criteria based on the opinion of decision-makers (in this study, the decision-makers are selected education experts) and suggestions from existing literature.

**Step 3.** Determine the preference of the best criterion or sub-criterion over all the other criteria or sub-criteria through a 9-point scale (1:  $B$  is equally essential to  $j$ ; 9:  $B$  is extremely more important than  $j$ ). This results in a best-to-others vector:

$$A_B = (a_{B1}, a_{B2}, \dots, a_{Bm})$$

where  $a_{Bj}$  indicates the preference of the criterion/sub-criterion  $B$  to over criteria/sub-criteria  $j$  and  $a_{BB} = 1$ .

**Step 4.** Determine the preference of all the criteria/sub-criteria over the worst criterion/sub-criterion through a 9-point scale. This results in an others-to-worst vector:

$$A_W = (a_{1W}, a_{2W}, \dots, a_{nm})^T$$

where  $a_{jW}$  indicates the preference of criterion/sub-criterion  $j$  over the worst criterion/sub-criterion  $W$ .

**Step 5.** Find the optimal weights by minimizing the maximum absolute differences  $\{|w_B - a_{Bj}w_j|, |w_j - a_{jW}W_w|\}$  for all  $j$ . Following Rezaei (2015), this can be formulated as:

$$\begin{aligned} & \min \max_j \{|w_B - a_{Bj}w_j|, |w_j - a_{jW}W_w|\} \\ & \text{s.t.} \\ & \sum_j w_j = 1 \end{aligned} \tag{1}$$

$$w_j \geq 0, \text{ for all } j$$

To solve, it can be transferred to the following linear problem:

$$\begin{aligned} & \min \xi^L \\ & \text{s.t.} \\ & |w_B - a_{Bj}w_j| \leq \xi^L, \text{ for all } j \\ & |w_j - a_{jW}W_w| \leq \xi^L, \text{ for all } j \\ & \sum_j w_j = 1 \end{aligned} \tag{2}$$

$$w_j \geq 0, \text{ for all } j$$

The optimal weights  $(w_1^*, w_2^*, \dots, w_n^*)$  and  $\xi^L$  can be obtained by solving problem 2.  $\xi^L$  is the consistency index; the closer it is to 0, the more reliable the results are. In applying the developed tool to assess the quality of SLMs, an expert respondent rated a set of sample SLMs using a 9-point scale according to the different criteria and sub-criteria determined. Each score was normalized by multiplying them to the maximum score value. Results are then multiplied to the optimal weights obtained. The assessment scores are aggregated for analysis and interpretation.

## Results and Discussion

As mentioned, the first step in BWM is the determination of criteria that would be given weights. There can be two sources in doing this step: (1) existing literature and (2) perspective of experts. In this study, both sources are used in identifying the set of criteria and sub-criteria that characterize the quality of self-learning modules. Through a literature review, the following decision criteria were identified:

Table 1. Criteria Suggestions from the Literature

References	Criteria Identified
Lemmer et al. (2008)	<p><b>Content</b></p> <ul style="list-style-type: none"> <li>All learning outcomes are included.</li> <li>Contextualized to the learners' level.</li> <li>Is rendered scientifically correct.</li> <li>Different themes are presented separately.</li> <li>Contents included are relevant.</li> </ul> <p><b>Instruction</b></p> <ul style="list-style-type: none"> <li>Considers the background and environment of the learners in the activities.</li> <li>Includes a variety of activities.</li> <li>Assessment tasks are contextualized to the learners' level.</li> </ul>

- 
- Tasks are accessible.

#### **Technical**

- Sufficient sketches are included.
  - Sketches are clear.
- 

Devetak & Vogrinc (2013).

#### **General**

- The structure is clear and transparent
- Technical guidance is considered.
- The content is consistent with the learning objectives/aims/goals.
- The content is a learning- goals based.
- Extends a coherent learning material in the framework of the specific educational program.
- The inductive approach is used.
- The content is correct.
- The content is didactically adequate.
- Suggestions for cross-curricular integration.

#### **Textual**

- Text is linguistically correct and appropriate.
- Text contains motivational elements.
- Text encourages active learning.
- Text contains activities at different cognitive levels.

#### **Pictorial**

- Visuals are of high quality.
  - Visuals contain motivational elements.
  - Visuals stimulate recall.
  - Integration of visuals and text.
  - Different types of visuals.
  - Multi-presentational aspect of the visual.
  - Visuals in activities.
- 

As reflected from Table 1, both the literature suggested almost the same set of characteristics defining an ideal instructional material, although both presented a different categorization. Devetak & Vogrinc (2013) used the term ‘General’ for characteristics comparable to what Lemmer et al. (2008) gave under the ‘Content’ category. For instance, both works emphasized the importance of correctness and accuracy of instructional and learning materials’ contents. Moreover, both also believed that visuals are an essential characteristic of learning materials. As observed, Lemmer et al. (2008) underscored that sufficient precise sketches should be included, while Devetak & Vogrinc (2013) reiterated the integration of high quality visuals and texts.

Table 2. Profile of Expert Respondents

Questionnaire 1 <i>(Defining quality criteria for self-learning modules)</i>		Questionnaire 2 <i>(Determining the Best-to-Others and Others-to-Worst vectors)</i>	
<b>Respondent No.</b>	<b>Academic Rank/Position</b>	<b>Respondent No.</b>	<b>Academic Rank/Position</b>
1,3,5,11,12	Instructor I	8,10	Teacher I
4	Master Teacher I	15	Teacher II
2	Education Program Supervisor	6,8	SST I
9	Assistant Professor I	9	Principal II
10	Assistant Professor III	1	Master Teacher I
6,13	Assistant Professor IV	14	Master Teacher II
14	Associate Professor I	4	Education Program Supervisor
15	Associate Professor II	3,5,13	Instructor I
7,8	Associate Professor III	2	Assistant Professor III
		11,12	Associate Professor I

Since the criteria identified through the listed literatures shown in Table 1 are divided into categories, the same approach was used in gathering the perceptions of the selected expert respondents. The categories given by Lemmer et al. (2008) were adopted and considered as the primary criteria in this paper. The expert respondents were asked to suggest sub-criteria or characteristics of a sound self-learning module based on content, instruction, and technicality criteria. Also, they were allowed to suggest other sub-criteria that they think do not fall under the given main categories. These additional suggestions are then aggregated into a new primary criterion as shown in Table 4. The profile of expert respondents is shown in Table 2. The answers of the expert respondents are as follows:

Table 3. Perceptions of Expert Respondents

<b>Criteria</b>	<b>Sub-criteria</b>
Content	<ul style="list-style-type: none"> <li>• Comprehensive</li> <li>• Relevant</li> <li>• Thorough</li> <li>• Concise</li> <li>• Compelling</li> <li>• Accurate</li> <li>• Well-organized and cohesive</li> <li>• Appropriate to the needs</li> <li>• Contents and outcomes are matched</li> <li>• Aligned with the course description</li> <li>• Topics and assessment is aligned with the intended learning outcomes</li> <li>• Adheres to the standards and requirements of the content/competencies</li> <li>• Covers the learning objectives of the course/subject</li> </ul>

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	<ul style="list-style-type: none"> <li>• Clearly defines intended learning outcomes</li> <li>• Contains examples</li> <li>• Contains applications of theories and principles in real-life setting</li> <li>• Contains figures or pictures</li> <li>• Present simplified concepts</li> <li>• Explanations are brief</li> <li>• Facilitates self-paced learning</li> <li>• Discusses basic applications prior to complex situations</li> <li>• Contextualizes the course content as to the institution, sector, and the like</li> <li>• Fosters research by providing furthermore readings and references</li> <li>• Based on facts and credible sources</li> <li>• Not plagiarized</li> </ul>
Instruction	<hr/> <ul style="list-style-type: none"> <li>• Self-paced</li> <li>• Caters to the demands of diversified learners</li> <li>• Differentiated and varied according to the level of learners</li> <li>• Easy to follow</li> <li>• Includes variety of interactive activities/exercises/hands-on</li> <li>• Includes relevant tasks</li> <li>• Includes different activities that will enhance cognitive learning</li> <li>• Includes activities that are eco-friendly and not costly</li> <li>• Includes activities and projects that are problem-based</li> <li>• Applies HOTS in questions</li> <li>• Integrates activities which encompass all multiple intelligence</li> <li>• Creative in facilitating the learning process</li> <li>• Contains clear, attainable, and output-oriented outcomes</li> <li>• Competency-focused</li> <li>• Engaging</li> <li>• Considers the multiple intelligences of students</li> <li>• Outcome-based</li> <li>• Contains helpful references</li> <li>• Enhances dynamic and systematic learning through exploration and related researches</li> <li>• Incorporates the use of communication and information technologies</li> <li>• Clear instructions</li> <li>• Encourages reflective practice and self-evaluation</li> </ul>
Technicality	<hr/> <ul style="list-style-type: none"> <li>• Grammatically-correct</li> <li>• Logically-arranged</li> <li>• Not plagiarized</li> <li>• Has good lay-out</li> <li>• Shall be IPR-passed</li> <li>• Systematized introduction of topics</li> <li>• Has uniform formatting</li> <li>• Has readable font style</li> <li>• Scholarly-constructed</li> <li>• Reviewed by IMEC</li> <li>• Free from a number of jargons</li> </ul> <hr/>

	<ul style="list-style-type: none"> <li>• Uses consistent terminologies or concepts</li> <li>• Uses simple sentences</li> <li>• Uses clear pictures</li> <li>• No spelling errors</li> <li>• Cites sources properly</li> </ul>
Others	<ul style="list-style-type: none"> <li>• Introduces good values and good etiquette indirectly</li> <li>• Observes cultural and ethical considerations</li> </ul>

As presented in Table 3, some responses resonated with the suggestions from the literature. For example, both agreed that content should be consistent or aligned with the learning objectives/aims/goals. Also, the expert respondents recognized the importance of having correct grammar and spelling, an inductive approach to presenting the contents, and the integration of varied and high-quality visual elements, to name a few. These responses from experts were compared and fused with the suggestions from the literature. Some answers were combined, while others were omitted because they were redundant. Other items were also transferred to other main criteria. By doing this, the final set of criteria and sub-criteria that defines the qualities of a sound learning module were able to be identified. These metrics can now serve as an initial basis for educators in formulating SLMs and other instructional and learning materials. Another significant criterion, which is the Ethical and Cultural Considerations, as seen in Table 4, was set. This happens because expert respondents' specific characteristics as not fitted to the other three major criteria (in Others, Table 3) imply the importance of giving considerations for ethics and cultural diversity. The summarized and final set of criteria and sub-criteria are as follows:

Table 4. Final Set of Criteria and Sub-criteria

<b>Criteria</b>	<b>Sub-criteria</b>
Content	(C1) Learning competencies are covered (C2) Texts and visuals are accurate and error-free (C3) Contents and outcomes are matched (C4) Aligned with the course description (C5) Topics and assessment are aligned with the intended learning outcomes (C6) Covers the learning objective of the course/subject (C7) Defines intended learning outcomes (C8) Contains theories and principles in real life setting (C9) Comprehensive and based on facts and credible sources
Instruction	(I1) Appropriate and contextualized according to the needs (i.e. learning styles, multiple intelligences, etc.) of the learners/students (I2) Includes variety of relevant and interactive written and performance tasks (I3) Encourages the use of ICT (I4) Provides development of cognitive, affective, and psychomotor domains of students (I5) Discusses basic applications prior to complex situations (I6) Includes research outputs as supplementary materials in instruction (I7) Uses problem-based activities/projects and frames questions that encourage higher order thinking skills (I8) Encourages reflective practice and self-evaluation (I9) Self-paced
Technicality	(T1) Has correct grammar and spelling

	(T2) Logically and systematically-arranged
	(T3) Not plagiarized and sources are cited properly
	(T4) Has good lay-out
	(T5) Has uniform formatting
	(T6) Has readable font style
	(T7) Uses clear pictures
	(T8) Uses simple but scholarly-constructed sentences
	(T9) Uses consistent terminologies or concepts
Ethical and Cultural Considerations	(EC1) Introduces good values and good etiquette indirectly
	(EC2) Observes ethical considerations
	(EC3) Observes cultural considerations

Now that the final decision criteria are identified, the optimal weights were able to be solved. This is done in order to find the relative importance of each criterion so educators can know which characteristic or area of SLMs they should prioritize and give attention to. However, it does not imply that the least important one would be neglected and given the least attention; these weights can be a point of comparison for educators in identifying which criteria affect an SLM's quality the most. In doing this, another 15 selected expert respondents were asked to choose their preferred best and worst criterion. The profile of these respondents is shown in Table 2. The expert respondents were also instructed to compare their selected best criterion to the other criteria in a scale of 1 to 9. One signifies that the best criterion is equally crucial to the other criteria. At the same time, 9 implies that it is extremely more important than the others. This comparison resulted in a Best-to-Others vector.

Similarly, the other criteria are compared to the selected worst criterion using the same scale, resulting in an Others-to-Worst vector. The resulting weights are shown below in Table 5. Note that these weights are the average of all the weights identified from each respondent.

Table 5. Relative Weights of Criteria And Sub-criteria

Criteria	Criteria weights	Criteria rank	Sub-criteria	Local weights of sub-criteria	Global weights of sub-criteria <sup>a</sup>
<b>Content</b>	0.603	1	(C1) Learning competencies are covered	0.200	0.121
			(C2) Texts and visuals are accurate and error-free	0.066	0.040
			(C3) Contents and outcomes are matched	0.140	0.084
			(C4) Aligned with the course description	0.084	0.051
			(C5) Topics and assessment are aligned with the intended learning outcomes	0.111	0.067
			(C6) Covers the learning objective of the course/subject	0.080	0.048
			(C7) Defines intended learning outcomes	0.071	0.043

			(C8) Contains theories and principles in real life setting	0.155	0.093
			(C9) Comprehensive and based on facts and credible sources	0.092	0.055
<b>Instruction</b>	0.160	2	(I1) Appropriate and contextualized according to the needs (i.e. learning styles, multiple intelligences, etc.) of the learners/students	0.258	0.041
			(I2) Includes variety of relevant and interactive written and performance tasks	0.084	0.013
			(I3) Encourages the use of ICT	0.061	0.010
			(I4) Provides development of cognitive, affective, and psychomotor domains of students	0.099	0.016
			(I5) Discusses basic applications prior to complex situations	0.089	0.014
			(I6) Includes research outputs as supplementary materials in instruction	0.075	0.012
			(I7) Uses problem-based activities/projects and frames questions that encourage higher order thinking skills	0.096	0.015
			(I8) Encourages reflective practice and self-evaluation	0.125	0.020
			(I9) Self-paced	0.112	0.018
<b>Technicality</b>	0.097	4	(T1) Has correct grammar and spelling	0.171	0.017
			(T2) Logically and systematically-arranged	0.189	0.018
			(T3) Not plagiarized and sources are cited properly	0.132	0.013
			(T4) Has good lay-out	0.070	0.007
			(T5) Has uniform formatting	0.076	0.007
			(T6) Has readable font style	0.086	0.008

				(T7) Uses clear pictures	0.083	0.008
				(T8) Uses simple but scholarly-constructed sentences	0.116	0.011
				(T9) Uses consistent terminologies or concepts	0.076	0.007
<b>Ethical and Cultural Considerations</b>	0.140	3		(EC1) Introduces good values and good etiquette indirectly	0.465	0.065
				(EC2) Observes ethical considerations	0.392	0.055
				(EC3) Observes cultural considerations	0.143	0.020

<sup>a</sup>The global weights indicated are obtained by multiplying the local weights of the sub-criteria to the weights of the main criteria where they belong.

As reflected from Table 5, Column 2, Content (weight = 0.603) is the best or most important criterion out of the four major criteria. This is followed by Instruction (weight = 0.160), Ethical and Cultural Considerations (weight = 0.140), and Technicality (weight = 0.097). The consistency ratios ( $\xi^L$ ) range from 0.153 to 0.279, which implies high reliability of comparison among the major criteria. Interestingly, the placement of Content and Instruction as the first and second most important criteria respectively resonated with proposed framework in Tarr et al (2006). The said paper posits that content emphasis and instructional focus should be one of the three important dimensions that should be considered in reviewing instructional resources.

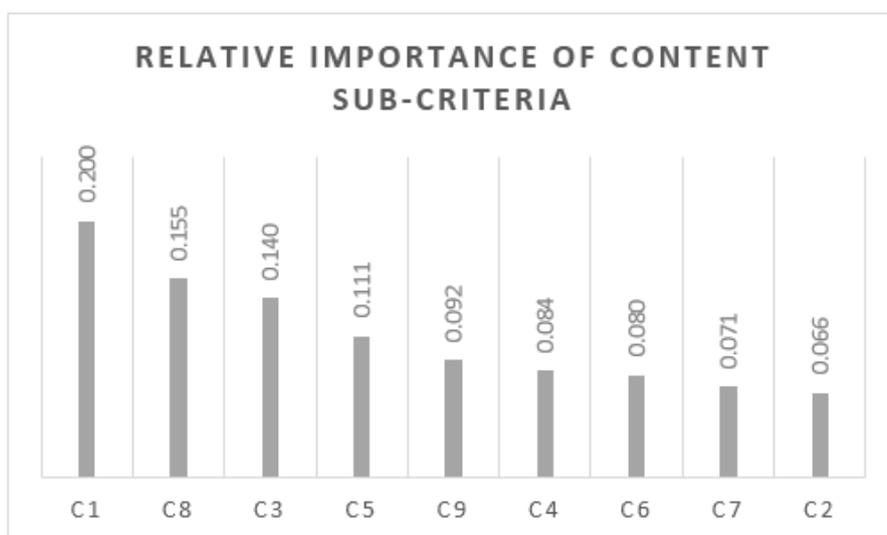


Figure 1. Relative Weights of the Sub-Criteria of Content

In Content, C1 (weight = 0.121) is selected as the best or most crucial sub-criterion, as shown in Figure 1. This sub-criterion pertains to the coverage of learning competencies. Its placement as the essential sub-criterion of Content implies that the education expert respondents perceived that the complete inclusion of learning competencies prescribed in the

curriculum should always be ensured. Also, C8, which emphasizes the addition to SLMs of theories and principles in a real-life setting, ranked second. This mirrored the assumption of several papers that an essential aspect of instructional and learning materials is the suitability of its contents to be used in everyday applications (Dreckmeyr et al., 1994; Leite, 1999; Hubisz, 2003).

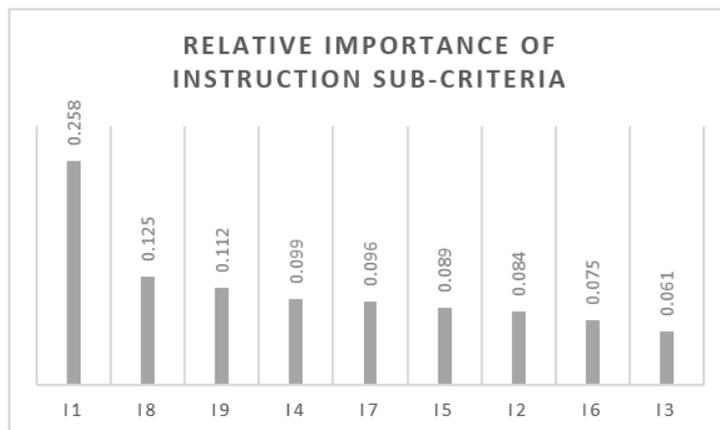


Figure 2. Relative Weights of the Sub-criteria of Instruction

As mentioned, Instruction (weight = 0.160) is ranked as the second-best major criteria. I1 (weight = 0.041), which focuses on the contextualization according to learners' varied needs is the most important sub-criterion of Instruction, as reflected from Figure 1. Several papers have agreed on the vitality of instruction in the production of learning resources, specifically in contextualizing its contents and instructional strategies to learner's varied needs. Contextualization constructs and transforms a more extensive environment for students (Haris & Putri, 2011; Weinberg, Besile, & Albright, 2011). When content and instruction are contextualized, materials, experiences, and situations that are relevant and meaningful to students are considered (Madrazo & Dio, 2020). However, contextualization requires time given the unavailability of local materials and pedagogical difficulty. Also, the fact that the learners' needs are various means that not all topics may be applicable (Madrazo & Dio, 2020). These disadvantages, given that BWM showed that it is a crucial sub-criterion, imply that educators shall give sufficient attention to the contextualization of Content and the strategies they will incorporate in their SLMs.



Figure 3. Relative Weights of the Sub-criteria of Ethical and Cultural Considerations

Ethical and Cultural Considerations (weight = 0.140) ranked as the third most important major criteria. EC1 (weight = 0.065), which emphasizes the introduction of good etiquette and values is the most important sub-criterion of Ethical and Cultural Considerations, as shown in Figure 3. Education, in general, is the best way to teach people about values (Sari, 2013). A paper (Veugelers & Vedder, 2003) posits on the importance of integrating Ethics in classrooms, emphasizing that the set of values embedded in the curriculum must be included in teachers' pedagogical practice. As argued by several papers (Goodman et al., 1992; Edwards et al., 1994), this exercise is a way to prepare students to function in a democratic society. To satisfy this sub-criteria, instructional and learning materials, including SLMs, should be based on living values and grounded on knowing, desiring, loving, and acting the good (Komalasari & Sapudin, 2017). Moreover, the materials must be contextual, bridging the values with their real-life application.

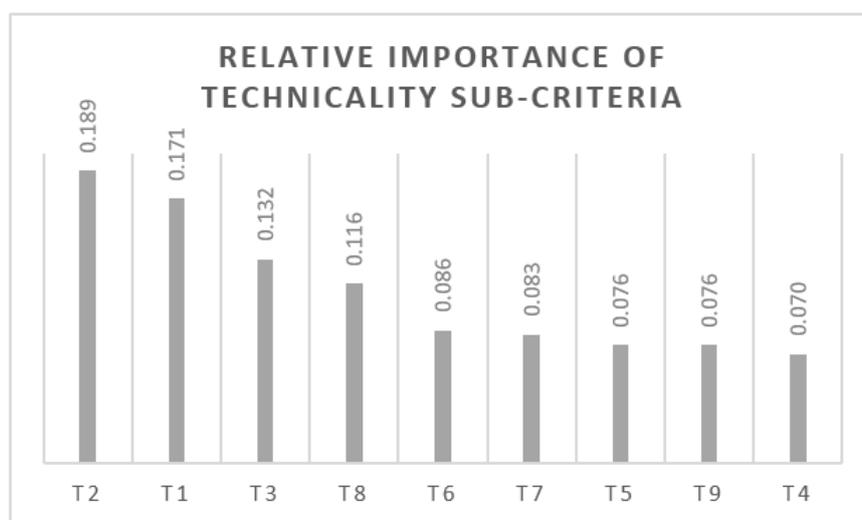


Figure 4. Relative Weights of the Sub-criteria of Technicality

Ranked last is Technicality (weight = 0.097). T2 (weight = 0.018), which deals with the logical and systematic arrangement of contents in SLMs is the most important sub-criterion of Instruction, as reflected in Figure 4. A paper (Dreckmeyr et al., 1994) emphasized that technical aspects such as quality of illustration, sketches, and graphs should be considered in learning materials like textbooks; the same applies for SLMs. Given this, teachers should ensure that there are no blurry visual elements when they produce SLMs. Defective illustrations sometimes result from poor photocopying quality; thus, they should be given attention during production.

### Real-life Application

After the quality criteria are identified and given weights, the developed tool can now be applied to assess student learning modules. In this paper, the first four learning modules in Science given to the Grade 6 students of Mangangan II Elementary School in Mangangan 2, Baco, Oriental Mindoro were used in the pilot assessment. The resident Master Teacher II of the said school was the expert respondent asked to rate the SLMs. The SLMs were rated on a scale of 1-9 according to the 30 quality criteria identified. The scores are normalized and finally multiplied to the respective global weights of each criterion. Results are shown below in Table 6. The score of the best performing SLMs for every criterion is highlighted.

Table 6. Comparison of the Quality of SLMs

Quality criteria	SLM 1 (Science 6, Week 1 – Quarter 1)	SLM 2 (Science 6, Week 2 – Quarter 1)	SLM 3 (Science 6, Week 3 – Quarter 1)	SLM 4 (Science 6, Week 4 – Quarter 1)
C1	<b>0.121</b>	<b>0.121</b>	<b>0.121</b>	<b>0.121</b>
C2	<b>0.040</b>	0.036	0.036	<b>0.040</b>
C3	0.075	<b>0.084</b>	0.075	0.065
C4	<b>0.051</b>	<b>0.051</b>	0.040	0.045
C5	0.060	<b>0.067</b>	0.052	0.052
C6	0.048	0.043	0.052	<b>0.067</b>
C7	<b>0.043</b>	<b>0.043</b>	0.038	<b>0.043</b>
C8	0.083	0.083	0.072	<b>0.093</b>
C9	<b>0.055</b>	<b>0.055</b>	0.049	<b>0.055</b>
I1	0.032	<b>0.041</b>	<b>0.041</b>	<b>0.041</b>
I2	0.012	<b>0.013</b>	0.012	0.012
I3	<b>0.010</b>	0.008	0.008	<b>0.010</b>
I4	0.012	0.012	0.012	<b>0.016</b>
I5	<b>0.012</b>	<b>0.012</b>	<b>0.012</b>	<b>0.012</b>
I6	<b>0.012</b>	<b>0.012</b>	<b>0.012</b>	<b>0.012</b>
I7	<b>0.015</b>	0.013	<b>0.015</b>	<b>0.015</b>
I8	<b>0.020</b>	0.018	0.018	0.018
I9	<b>0.018</b>	<b>0.018</b>	0.014	<b>0.018</b>
T1	<b>0.017</b>	<b>0.017</b>	0.015	<b>0.017</b>
T2	<b>0.016</b>	<b>0.016</b>	0.014	<b>0.016</b>
T3	0.012	<b>0.013</b>	<b>0.013</b>	0.012
T4	0.006	<b>0.007</b>	<b>0.007</b>	0.005
T5	0.005	0.005	0.006	<b>0.007</b>
T6	<b>0.007</b>	<b>0.007</b>	0.006	<b>0.007</b>
T7	<b>0.008</b>	0.007	0.006	0.007
T8	<b>0.010</b>	<b>0.010</b>	0.009	<b>0.010</b>
T9	<b>0.007</b>	0.005	<b>0.007</b>	0.006
EC1	<b>0.065</b>	0.058	<b>0.065</b>	<b>0.065</b>
EC2	0.049	<b>0.055</b>	<b>0.055</b>	<b>0.055</b>
EC3	<b>0.020</b>	0.018	0.020	0.018
<b>Aggregated Score</b>	0.031	<b>0.032</b>	0.030	<b>0.032</b>

As reflected from Table 6, SLMs 2, and 4 both obtained equal aggregated scores of 0.032, while SLM 1 obtained 0.031. In contrast, SLM 3 obtained 0.030, which is the lowest. These results imply that there is almost no difference in the quality of all self-learning modules used in the pilot assessment as perceived by the expert respondent. Since this is the case, the comparison of individual scores can give perspective on the standing of each SLM used according to every criterion identified. Individual scores can give insights on which quality criterion an SLM needs improvement when compared to other SLMs.

However, if the objective is not to compare SLMs, knowing each quality criterion's vitality can help educators formulate and produce quality and practical self-learning modules based on their objective. For instance, if teachers want to improve their SLMs in terms of instruction, they have to focus on contextualizing the Content according to learners' varied

needs, since the results in Table 5 showed that the criterion focusing on contextualization (T1) is the most important for instruction. The same applies if educators want to shift the focus of their objectives during the formulation and production of SLMs. This suggests that the weights identified in the earlier part of this paper should be taken into account when formulating an SLM. Each value would affect the over-all quality; the bigger the weight, the higher it affects the quality. In general, regardless of knowing the advantage of SLMs to other SLMs, based on each quality sub-criterion's weights, teachers can identify which aspect can change or improve the quality of SLMs from each significant criterion. This being said, the results of this paper can help improve the over-all quality of self-learning modules.

## **Conclusion**

This paper established a tool to assess self-learning modules' quality through the Best Worst Method (BWM). Using expert respondents' perspectives and the suggestions from existing studies and literature, four primary quality criteria, namely Content, Instruction, Technicality, and Ethical and Cultural Considerations were identified and given weights; among these, Content is the most important. Each primary criterion has its sub-criteria with individual weights, establishing a total of 30 quality sub-criteria. Application of the tool proved that it can be used in comparing the quality of SLMs. Moreover, suppose comparison is not the objective. In that case, each quality metric's identified weights can be used in recognizing which aspect can improve the quality of SLMs since the weights signify the degree of importance of each metric. This paves the way for the formulation and production of effective and productive self-learning modules. The developed framework is also holistic; thus, it can also be applied to other instructional and learning materials like textbooks.

## **Recommendations**

To increase the reliability ( $\xi^L$ ) of the comparison of the criteria (that is, during the establishment of Best-to-Others and Others-to-Worst vectors) by the expert respondents, answering the questionnaire should be done in-person to ensure that the objective of the method and the nature of each quality metric are clearly explained.

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***Strides in Mathematics and Science: An Introspective Look on the First SHS Graduates' Perceived Self-efficacy***

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**Abstract**

The K to 12 Curriculum has changed the landscape of the Philippine Education System. Several speculations and challenges emerged before and after its initial implementation. This prompted the interest of the researchers to identify the readiness of the first senior high school (SHS) graduates of the K to 12 curricula who were then admitted in the different program offerings of the College of Science of the Bulacan State University. An initial collection of data was obtained from students of differing senior high school backgrounds. Results indicated that students have average perceived self-efficacy in mathematics and science. A second part study was conducted to identify the challenges and difficulties they have encountered and the adjustments they have made while being in the Program. This was carried out using a qualitative method of data collection. Thematic analysis revealed the sources of challenges and difficulties and sources of adjustments. Using the same analysis method, students were asked to describe their perceived self-efficacy before and while completing their Program. Resulting from this are themes that generally relate to their self-efficacy as (1) Positive description, (2) Negative description, and (3) Neutral description. Moreover, recommendations from student-respondents regarding the improvement in learning mathematics and science were taken into consideration, serving as bases for the proposal and development of a program for mentoring aimed at building capacity and enhancing proficiency among students of the S&M programs for the College of Science.

Keywords: Self-efficacy, STEM, SHS

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## Introduction

The K to 12 curriculum, initiated in 2012 under the administration of the then President Benigno C. Aquino III, initially received many criticisms and speculations. But along these are the rationalization for its implementation and allocation of funds to augment the additional costs of schooling and finance capacity-building for teachers. Since the K to 12 aims to create primary education that will produce citizens equipped with all the needed skills and competencies, it is expected that with these additional years in basic education, the students will be well prepared for higher education (DepEd, 2021) and better equipped with life skills. Also, since one of the K to 12 Education Program features is the decongestion of the curriculum by removing repeated competencies, mastery could be developed. It will ensure continuity in knowledge, skills, values, and attitudes (EFA, 2015).

The implementation of the new curriculum was deemed vital since there is always the demand for a nation to have its citizens keep up with the local demands and international standards, for which having high-quality education is an esteemed major key in their fulfillment. In support of this, former DepEd Secretary Brother Armin A. Luistro, FSC, stated in an interview, “As students go up the ladder, we want them to learn skills that are being demanded by employers while at the same time giving them the chance to appreciate and enjoy the lessons,” (DepEd, 2012). However, prior and present challenges in learning, particularly science and mathematics, have gained more concern based on the following reports.

As revealed in the OECD (Organization for Economic Cooperation and Development) report for the Filipino students’ performance, there were distressing results of assessments to meet the international standards, especially in science and mathematics. In the Philippines, PISA (2018) results revealed that the average performance in the science of 15-year old students is lower by about 132 points compared to the average points in OECD countries (357 points for the Philippines against 489 points average in OECD countries). Meanwhile, for mathematics, the average performance of 15-year old students is 136 points lower than the average performance in OECD countries (353 average points for the Philippines compared to 489 average points in OECD countries). These assessment results in science and mathematics are not novel since, before these results, the Philippines has not been faring well in the TIMSS (Trends in International Mathematics and Science Study). In 2019, the scores of Filipino students had even leveled down compared to the 2003 results, that is, 297 in math and 249 in science in 2019 as compared to the results 358 in math and 332 in science in 2003. It was also cited that for mathematics, only one percent of students have reached a high standard (Bernardo, 2020). The performance of Filipino students in science and mathematics has long been a concern, especially with the realization of how these two disciplines serve as tools for nation-building and sustainable development.

The K to 12 has caused major transitions and changes in the Philippine system of the education landscape. This means that the transition impact is not isolated to the Department of Education (DepEd) but also to higher education. The Commission on Higher Education (CHED, 2020) agrees that there was never a doubt on the implementation of K to 12 as based on historical antecedents in the Philippine system of education. Its adoption is inevitable, and the only question that remained was when it would be implemented, especially with the vision of empowering students and achieving complete human development more adjusted to global change. Hence, the commission itself made changes to be aligned with the new curriculum using the outcomes-based approach. Also, to avoid duplication of science and

mathematics courses already offered in the STEM track of the senior high school (SHS), some have either been removed or replaced. Consequently, general courses were trimmed down to a lesser number of units. However, one that became a foreseeable challenge is the degree of competency of the STEM track along with the competency of non-STEM SHS K to 12 graduates who decided to embark on taking STEM programs.

It is grounded on these aforementioned that the researchers conducted a study to identify the students' self-knowledge of their capacity to take and finish their chosen Science and Mathematics (S&M) program being offered by the College of Science of the Bulacan State University. This study aims to describe the perceived self-efficacy in mathematics and science of the first SHS graduates of the K to 12 curriculum before entry and while in their respective S&M programs. It is noted that the students' perceived self-efficacy is based on how they look at their capabilities. Having a high level of efficacy improves human achievement and personal well-being differently, while those who doubt their abilities tend to avoid challenging tasks (Bandura, 1994). Remarkably this has an impact on learning since it is regarded that those who believed themselves as having a high level of efficacy, like in mathematics, have more advantage in solving mathematical problems as compared to those who have self-doubts and are also regarded as having higher resiliency (Bandura, 1997) mainly when their abilities to perform well are challenged. Moreover, since self-efficacy is also associated with positive emotions, it has a beneficial influence on learning, especially mathematics (Villavicencio & Bernardo, 2015).

This study was expected to achieve an illumination on the perceived self-efficacy of students before and while completing their program. This also served as a reference line study on the effectiveness and point for reflection on the K to 12 curriculum and the S&M programs of the College of Science of the Bulacan State University.

Generally, this study aimed to describe the perceived mathematics and science self-efficacy of the first batch graduates of the K to 12 curriculum upon entry and while completing their S&M program in the College of Science.

Specifically, the study sought answers to the following:

1. what is the profile of the first SHS graduates of the Grade K to 12 curriculum enrolled in the S&M programs of the College of Science;
2. how can the perceived mathematics and science self-efficacy of the first SHS graduates of the K to 12 curriculums be described;
3. what major difficulties and challenges concerning mathematics and science capabilities have the students encountered in the program they are in, and what significant adjustments have they made; and
4. how do students described their perceived self-efficacy in mathematics and science before taking the program they are in up to their present perceived self-efficacy?"

B. Apart from the abovementioned, it was also the aim of this study to come up with a proposal for intervention or program based on recommendations of the student-respondents to help out the students of the College of Science in keeping up with the demands of the S&M programs and cope with the challenges in learning mathematics and science courses.

## Methods

This study used the mixed-method research design (Creswell, 2009). Firstly, for the quantitative part, this study employed a survey research method using direct administration as the mode of data collection (Frankael & Wallen, 2007). Initially, a self-made questionnaire was subjected for validation and underwent a try-out or pretest. Randomly selected first SHS graduates of the K to 12 curriculum newly enrolled (School Year: 2018-2019) in different S&M programs of the College of Science were asked to answer the constructed questionnaire. This questionnaire consisted of two parts. The first part is related to the profile of the student-respondents and the second part is about their perceived self-efficacy in mathematics and science. Each item in the questionnaire pertained to competency in a particular specialization subject in S&M. The level of perceived self-efficacy was rated using a Likert Scale by the student-respondent ranging from “Very Poorly” to “Very Well.” Mean and standard deviation for each item were given verbal description and general interpretation. Overall, the data gathered and analyzed were presented in tables.

Secondly, for the qualitative part, an open-ended questionnaire was answered via an online google form. Purposive sampling involving students from the mathematics and science programs was utilized in this study section. A block section of students from each department was chosen. One section comprises 40 third-year students of the Bachelor of Science in Mathematics with specialization in the Business Applications program. The other section is composed of 31 third-year students from the program Bachelor of Science in Environmental Science. Students from both departments were student-respondents in the first part of this study. Their responses to questions 3 and 4 in this study were thematized, analyzed, and presented. They were also asked to provide recommendations for improving learning in mathematics/science, which responses were also thematized, analyzed, and presented.

In all of the foregoing, permission from the student-respondents was also secured with the dean of the College of Science. The participants of this study were considered young people (ages 15-24), and possible ethical issues such as harms and benefits, consent, and confidentiality were given close attention (Truscott et al., 2019).

## Results and Discussion

The following presents the profile of the first SHS graduates of the Grade K to 12 curriculum enrolled in the S&M programs of the College of Science. A total of 280 freshmen students of the College of Science enrolled during the School Year 2018-2019 responded to the survey questionnaire. The processed responses revealed the following.

<b>Academic Track</b>	<b>No. of Students</b>	<b>%</b>
STEM (Science, Technology, Engineering, and Mathematics)	105	37.50
GAS (General Academic Strand)	34	12.14
HumSS (Humanities and Social Science)	4	1.43
ABM (Accountancy and Business Management)	13	4.64
Tech-Voc (Technical -Vocational)	26	9.29
No Response	98	35.00
<b>Total</b>	<b>280</b>	<b>100</b>

Table 1. Distribution of Academic Track

As indicated in Table 1, the highest number of responses is on the academic track of STEM with 105 responses for about 37.50%. Next is the GAS with 34 responses. The least number of responses is the HumSS with 4 responses for about 1.43%. There are also 98 missing responses with 35%,

<b>School</b>	<b>No. of Students</b>	<b>%</b>
Public	104	37.14
Private	168	60.00
No Response	8	2.86
<b>Total</b>	<b>280</b>	<b>100.00</b>

Table 2. The Type of School Students During SHS

Considering the additional 2 years in basic education with a consequential economic impact on families, still more students studied in private schools with 168 responses at about 60% response rate. This could be explained by the financial assistance being provided to Grade 10 completers thru the Senior High School Voucher Program (SHS-VP) (DepEd, 2020). On the other hand, 104 students studied in public schools with its response rate of about 37.14%.

<b>First Choice</b>	<b>No. of Students</b>
BS Math	51
BS Civil Engineering	66
BS Architecture	19
BS Computer Engineering	11
BS Mechanical Engineering	15
BS Accountancy	7
BS Electrical Engineering	4
BS Nursing	2
BS Information Technology	1
BS Biology	63
BS Food Science	1
Bachelor of Industrial Technology	7
BS Psychology	1
BS Environmental Science	10
BS Criminology	1
Total	259

Table 3. Distribution of Program for Students' First Choice

It can be construed in Table 3 that most of the students preferred the BS Civil Engineering course with 66 responses, followed by the BS Biology with 63 responses. The least were the BS Criminology, BS Psychology, BS Food Science, and BS Information Technology with only one response. However, for the second choice, it was revealed that the BS Math program topped the list.

The perceived mathematics and science self-efficacy of the first SHS graduates of the K to 12 curriculum was determined and described using the questionnaire below. A list of 20 skills statements for mathematics and science efficacy was used in the questionnaire.

<b>Item</b>	<b>Weighted Mean</b>	<b>Verbal Description</b>	<b>Standard Deviation</b>
1. To what extent can you explain the results of measurements and conversion of units?	3.26	Average	2.80
2. How well can you choose an appropriate formula in answering a chemistry or physics problem?	3.19	Average	2.76
3. How well can you explain mathematical and conceptual relationships?	3.06	Average	2.62
4. To what extent can you interpret data/computational results presented in charts/graphs?	3.33	Average	2.89
5. How well can you describe the relationship between biotic and abiotic factors in the environment?	3.20	Average	2.78
6. How well can you work with laboratory equipment/apparatus and chemicals?	3.30	Average	2.87

7. How well can you propose solutions to real-life problems requiring mathematical or science concepts?	3.28	Average	2.83
8. How well can you write a laboratory report, with complete data and a summary of findings?	3.12	Average	2.69
9. How well can you describe heat and electricity flow?	3.06	Average	2.64
10. How well can you handle and interpret gathered data using a statistical tool?	3.11	Average	2.69
11. How well can you describe a chemical reaction through a chemical equation?	3.08	Average	2.64
12. Are you capable of handling different live and preserved species/organisms?	3.20	Average	2.78
13. How well can you read chemical symbols and formulas?	3.12	Average	2.71
14. How well can you analyze a word problem in chemistry and physics?	3.10	Average	2.67
15. Are you capable of handling different live and preserved species/organisms?	3.04	Average	2.65
16. Are you capable of utilizing different indigenous materials for a science project?	3.14	Average	2.72
17. Can you integrate mathematical principles/theorems in coming up with a solution to a science problem?	3.11	Average	2.68
18. How well can you carry out experimental procedures with confidence?	3.24	Average	2.82
19. How well can you use calculators, charts, and tables?	3.43	Average	3.03
20. How well can you use measuring devices in the laboratory?	3.43	Average	3.00

Table 4. Description of the Students' Perceived Mathematics and Science Self-Efficacy

Based on Table 4, students, in general, have identified themselves as having average perceived mathematics and science self-efficacy. Students have rated themselves numerically using the following: (1) Very Poorly, (2) Poorly, (3) Average (4) Well, and (5) Very Well.

The ensuing results of the thematic analysis were obtained as guided by the question: "What major difficulties and challenges concerning mathematics and science capabilities have you encountered in the program you are in? What major adjustments have you made?" Upon analysis, sources of challenges and difficulties were identified. These could originate from students' classmates or colleagues, the program they are in, the nature of mathematics/science, and their selves.

Sources of Challenges and Difficulties	Frequency	Excerpt Examples
Colleagues/Classmates	1	“The one who gives me major difficulties is my colleagues.”
Program	3	<p>“I thought the program was just about science since it’s only there where I know a bit, I was surprised that what I entered is with mostly mathematics.”</p> <p>“The major difficulties and challenges that I encountered with math and science are those new topics that were introduced to us, and also the expectations of teachers regarding our capabilities in the given topics”</p>
Nature of Mathematics/Science	8	<p>“Both subjects are hard”</p> <p>“I find it difficult to understand the different lessons especially in mathematics”</p>
Self	21	<p>“ Since I’m not that good in math since high school”</p> <p>“ I think, one of my major difficulties in both science and mathematics is having short-term memory about the certain topic”</p> <p>“As long as there are computation-related, I am finding it hard”</p>

Table 5. Summary of Thematic Analysis on the Sources of Challenges and Difficulties of Student-Respondents in A Science Program

Sources of Challenges and Difficulties	Frequency	Excerpt Examples
Program	12	<p>“But when I began college days, it gave me a shock because I didn't expect it to be that hard”</p> <p>“Since I did not take STEM, it was very difficult for me because I was not familiar with most of the lessons and topics in this program”</p>
Nature of Mathematics	12	“In mathematics, I find it difficult to calculate numbers to be converted into a fraction.”
Self	17	<p>“Math subjects that were much different during high school”</p> <p>“Difficulties... is sometimes I’m not focused on the lesson or I’m busy on other things. That’s why I didn’t learn.”</p>

“There are times when I can't analyze problem sets that are described in so many words”

“I am not ready yet, ready in terms of mastering the Mathematics specialization”

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Table 6. Summary of Thematic Analysis on The Sources of Challenges and Difficulties of Student-Respondents from a Mathematics Program

Based on the above results, there was only one response for the challenge with Colleagues/classmates. The theme Program that stands for all that pertains to expectations, nature, and requisites of the program, the Nature of mathematics and the Self have varying frequencies. For the nature of mathematics/science, the students have preconceived ideas how they will fare in these areas. Their perceived self-efficacy can be associated with how their perceived performance will be in mathematics/science. Specifically, when it comes to mathematics and science courses like chemistry and physics, students who have lower perceived self-efficacy in doing computations will have less perceived performance in these areas. Last among these themes is the Self. Students who came from different backgrounds (e.g. senior high school track and school) are understood to have different levels of preparations and expectations upon entry to their chosen program in the college (Cuy & Salinas, 2019). Though the students from the STEM track have understood the advantages in taking an S&M program, this turned out to be not a major hurdle for some students. One respondent from the B.S. Environmental Science program and was a graduate of the Tech-Voc track stated:

*“I was into Science since then but there are topics that I don't know much about so I need to study it harder than other subjects that I have.”*

Another non-STEM respondent from the same program stated:

*“Math is my weakness but I do exert extra efforts so that I can pass the subject.”*

However, some are convinced that they will not fare well especially in mathematics as indicated in a statement by one respondent:

*“I've always struggled with math.”*

The challenges and difficulties encountered and how the students looked at their self-efficacy, encouraged them to decide and made adjustments for the program they are in. In the same manner, using thematic analysis, sources for adjustments of the students were identified. The ensuing results revealed the sources as the Self, Classmates and other individuals, and Learning tools.

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Sources of Adjustments	Frequency	Excerpt Examples
Self	35	“But there are topics that I don't know much about so I need to study it”  “I don't waste time and take the subject seriously.”
Classmates and other individuals	14	“I also seek help from my other classmates”  “Then sometimes I ask some of my classmates or friends to explain or clarify “

Learning tools	15	“To study if cannot understand, I ask for a tutorial from my friend”
		“For the adjustment that I have made, first I watch tutorial computation videos”
		“I find solutions or examples from social platforms “
		“Adjusted by reading books and watching tutorial videos online”
		“There are also available online resources, there are free video tutorials”

Table 7. Summary of Thematic Analysis on the Sources of Adjustments of Student-Respondents from the Mathematics and Science Programs

The presented results revealed the adjustments made by students. Frequency revealed that Self is the major source of adjustment. The Self as a source of adjustment can be described as making a change in behavior, habits, or mindset to adjust. An example is deciding on studying harder and putting more effort into learning. As stated by one respondent:

*“As of now, I have made so much adjustment to learn and to be knowledgeable about math. I am poor in math but I study more and more to be efficient and good in math.”*

Another adjustment made by the student-respondents is their tendency to seek out help when in need. The mastery or learning of a particular lesson like in mathematics can be associated with the students’ use of their help-seeking behavior (Federici et al., 2015). An example where the Classmates and other individuals as a source of adjustment can be gleaned is in the following declarations of two different student-respondents:

*“I always reach help from my classmates, so that I can control my challenges.”*

*“That is why with the help of my classmates, it is only then that it becomes clear to me the embarrassing question to my Prof, eh I just forward it to my classmate”*

Lastly, for the source of adjustment, the students have resorted to the available means by which they could be helped in learning challenging mathematics or science lessons. Admittedly, the use of online resources has helped them make adjustments. As revealed by one respondent:

*“For the adjustment that I have made, first I watch tutorial computation videos”*

In another statement:

*“What I did is that, I tried to find alternative learning materials related to them like videos on Youtube and examples in Google.”*

Also, it was revealed from the responses that among the online resources, commonly the student-respondents resort to watching video tutorials having Youtube as the main platform.

For the research question: How would you describe your perceived self-efficacy in mathematics or science before taking the program you are in up to your present perceived self-efficacy?” combined general answers were presented in Table 8. For both programs in the College of Science, the results of the thematic analysis were summarized as follows.

Description	Frequency	Excerpt Examples
Positive Description	77	<p>“I can do it like if its chemistry I can do it and I can understand”</p> <p>“Nowadays I think I put more effort and dedication in understanding the lesson and given materials since Science and Mathematics subjects get harder along the way”</p> <p>“Because of many subjects that related to mathematics subjects I learned many techniques and methods on how I can solve the problem well”</p>
Negative Description	25	<p>“A bit poor in math, I even had a grade of 76 (a lower grade) in pre-calculus”</p> <p>“I know to myself that before I entered the college of science under the BS Mathematics program, that I’m not that good in mathematics”</p>
Neutral Description	10	<p>“Just like in the past (perceived self-efficacy)”</p> <p>“I’m in the average level. I can understand some ideas but there are still some learnings that give me confusion”</p>

Table 8. Summary of Thematic Analysis on the Description of the Perceived Self-Efficacy of Student-Respondents Before and While Taking their Mathematics and Science Program

To describe the perceived self-efficacy before and while taking the program the student is in is to identify if there has been a change in several aspects of his or her learning of mathematics/science. A positive description is interpreted as having improvements like in performance, study habits, and or perspectives. A negative description is interpreted by a declaration of negative feelings and attitudes toward mathematics/science, doubts in capabilities, and acceptance of poor performance. Lastly, the neutral description is interpreted as being on the average or accepting to be not good or bad in performance and are open for more things to learn. The students based the measure if they are performing well or fairly in mathematics or science as based on other factors like exam or class participation and not based on self-perception.

Lastly, the results of the thematic analysis of the responses for the question: “What recommendations can you give to improve the learning of mathematics/ science?” is presented in Table 9. It was revealed that areas for improvement based on the student-respondents views and experiences are as follows: Self Adjustment, Pedagogical support and learning tools, and Program and faculty.

Areas for Improvement	Frequency	Excerpt Examples
Self-Adjustment	43	<p>“Let yourself enjoy while studying the math”</p> <p>” Be determined to do your best to achieve your goal, so at the end, you won't regret”</p> <p>“Make yourself excited about science”</p> <p>“You've got to love the process”</p> <p>“Going further into mathematics, it'll start to become complex, but the concepts of the basics are still there. Memory is good, but improve your analytic thinking skills more.”</p>
Pedagogical support and learning tools	24	<p>“To have a tutorial class for those students that are having difficulties in learning science.”</p> <p>“Group tutorials are really of a big help”</p> <p>“Use the power of the internet. Learn something through the internet. There is a wide knowledge with regards to math that you can see in the net.”</p> <p>“It helps me a lot. I am one of the Youtube users who is looking for some explanations to understand our lesson.”</p>
Program and faculty	35	<p>“Give more examples”</p> <p>“Explain it broadly and through the easiest way even though it is hard for it to process.”</p> <p>“Maybe if the Prof elaborates the topics well and not assumed that we already know those things, I think it might help those students that are facing difficulties”</p> <p>“Conduct study on techniques students can use to easily learn math lessons”</p>

Table 9. Recommendations of student-respondents from the Mathematics Department and Science Department for Improvement in the Learning of Mathematics/ Science

The theme Self-adjustment was identified based on the recommendations made by the student-respondents relating to how one can make improvements in the learning of mathematics/science. Self-motivation techniques, the development of positive attitudes, and the achievement of traits for self-enhancement can be gleaned from the responses. As one respondent related:

*“I can also recommend my adjustment to improve my learning for this semester which I start doing Journaling again wherein for every day I set a task or goals that I need to*

*do and at the end, I write what I achieved for the day or if I fulfilled my set goals for that day and personally, it helped me to boost myself especially in my learning because I keep on track my learning progress”*

For the pedagogical support and learning tools, the student-respondents' recommendations based on their experiences revealed their behavior of seeking help for tutorial either from other individuals or by watching videos from the internet. They also cited the importance of the available resources like books and learning materials that could also be from the internet. As related by one respondent:

*“If you don't understand something, you can read trusted sources from the internet”*

The last area in the recommendation is the Program and faculty. The student-respondents identified points for improvement for the program and methods or approach of the program faculty. One respondent in the science program recommended:

*“I think more detailed lecture-discussion together also with a more detailed application on laboratory.”*

As for the faculty, one recommended:

*“Approachable instructors that are open with their class will always suffice because it opens an opportunity for us to ask more questions and learn more”*

Based on the foregoing, the researchers identified a key area that can be focused on as for the intended intervention program. This program is targeted at building capacity and enhancing proficiency among students of the S&M programs of the College of Science by setting up an official tutorial or mentoring activity specific to address difficulties in certain areas of mathematics and science. Thus, an output for this study is a proposed plan and guidelines for the implementation of the said program.

## **Conclusion**

Based on the quantitative data gathered, it can be identified that the students who enrolled in the College of Science S&M programs have varied backgrounds in terms of the track taken in senior high school, the type of school they graduated from, and the program they first intended to apply and enroll. However, results also show that their perceived self-efficacy in mathematics and science can generally be described as average.

For the qualitative part, the data presented resulted from the thematic analysis of the responses to an open-ended questionnaire given by selected third-year students from mathematics and science programs of the college who were also part of the pool of respondents in the first part of this study. Results showed the general increase in the students' perceived self-efficacy in mathematics/science as revealed by responses themed as Positive Description. It was also identified their sources of challenges and difficulties as themed as (1) Program, (2) Nature of mathematics/science, and (3) Self. Consequently, students were able to adjust based on different sources. Sources of adjustments were identified as (1) Self-adjustment, (2) Classmates and other individuals, and (3) Learning tools. Furthermore, recommendations for improvement in learning mathematics and science from the student-respondents were thematized and analyzed.

In cognizance of the students' determination to learn mathematics and science, the researchers came up with the proposal and development of a mentoring program that will be

a formal program of the College of Science intended to promote capacity-building and enhancement of proficiency in mathematics and science of students in its different S&M program offerings.

Also, it is recommended that further study be conducted as a follow-up to determine perceived self-efficacy of succeeding SHS batches of the K to 12 curriculum. This is to enlighten and make necessary actions by the different stakeholders in improving the curriculum, especially in mathematics and science.

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***Designing A Multiple Submission Policy Supporting Mastery Learning for a Design Thinking Class in a Purely Online Learning Environment***

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**Abstract**

Mastery learning is defined as an approach where students are equipped with complex skills required in the VUCA world instead of simple skills that only apply to traditional classrooms. One way to encourage mastery learning in the classroom is through repeated assessments, specifically formative ones. In this paper, we describe our experience in designing a multiple submission policy to support mastery learning for a design thinking class taught purely online amidst lockdowns due to COVID. The transition to online learning and today's context presented an opportunity to target mastery learning instead of traditional learning outcomes, which we achieved in two ways. First, we elevated the assessments' level on Bloom's taxonomy and encouraged iteration by providing feedback to guide metacognition. Second, we built creative confidence providing a safety net for graded assessments, which helped address fears of judgment and lack of control. In the process, we also overcame transactional distance to help promote self-efficacy, especially those with initially low grades. The policy was implemented with the aid of technology, which served as the medium for learning and dialogue. The use of technology in this study allowed for practices that were otherwise not implemented or even considered in previous trials of the class. The study resulted in positive feedback and improved quality of submissions from participants.

Keywords: Mastery Learning, Online Learning, COVID-19, Design Thinking, Bloom's Taxonomy, Metacognition, Self-Knowledge, Creative Confidence, Transactional Distance, Multiple Submissions

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## Introduction

Mastery learning is defined as an approach where students are equipped with complex skills required in the VUCA world instead of simple skills that only apply to traditional classrooms. The approach is founded on the philosophy that all students can learn well given the appropriate instructional conditions, which instructors can customize depending on their needs. In this way, students acquire basic intellectual competencies for learning at any stage in life. To apply the Learning for Mastery Strategy (LFM), instructors must define, plan, teach, and grade for mastery. In this paper, we focus on the planning stage where we developed feedback procedures alongside formative assessments and alternative instructional materials and procedures for students whose performance falls below the mastery standard (Block & Burns, 1976).

Mastery learning and design thinking have shared principles that prompted the implementation of the multiple submission policy:

1. The mindset developed goes beyond the classroom and extends to all aspects of life, which called for a reevaluation of assessments and policies in the class.
2. Both give focus to customizing or adjusting based on needs, which is not the norm in traditional classrooms where typically one size fits all.
3. Both emphasize the need for feedback and iteration when the desired standard is not met.

Through the multiple submission policy, which embodies the similarities of mastery learning and design thinking, formative assessments became more aligned with the principles of the class itself.

This paper describes the researchers' steps in designing and implementing a multiple submission policy in an online design thinking class with mastery learning as the primary theoretical framework to improve the learning of students as measured by their submissions. The positive outcome is attributed to higher-level thinking and metacognition based on Bloom's taxonomy and creative confidence enabled by the perception of having a safety net for substandard grades. As a by-product of the increased dialogue between instructors and students, transactional distance was overcome to also promote positive learning outcomes especially from students with initially substandard grades.

## Methods, Design, and Monitoring of the Class

This paper focuses on a class titled Creative Thinking and Innovation Management. All students of the John Gokongwei School of Management of the Ateneo de Manila University need to take this class in their curriculum regardless of the degree program they are pursuing.

### 1. Online Setup

The course was hosted on the university's online learning management system, Canvas. The platform served as the main avenue for delivering course content and gathering submissions from students. Synchronous sessions were conducted on Zoom calls. Apart from Canvas and Zoom, other digital tools were used to enhance communication and engagement:

- Students had the option to choose the messaging platform that would be most convenient and visible for them. For this class, students chose Facebook Messenger or Discord.

This is where instructors sent announcements, individually communicated with students, and conducted polls to have a better feel of the class.

- Padlet was used as an alternative to discussion boards at times to change the interface that the students engaged with. It was used to collect responses to both formal and informal discussions (e.g. getting to know activities). Padlet retains the commenting and reacting features of Canvas discussion boards but does not have the Speed Grader feature, where instructors can enter scores and comments on the students' assessments.
- Open Broadcaster Software (OBS) was used to record video feedback.
- PDF annotation tools were used as an alternative to the built-in Speed Grader function of Canvas.

## **2. Challenges of Online Learning**

With the onset of the global pandemic, the university transitioned from face-to-face classes to a purely online learning setup. Online, students and instructors alike encountered several challenges on top of existing ones. Specifically, challenges related to the quality of students' submissions are outlined below:

- Unstable or unreliable internet connection is a potential source of delay for students going through the course. Cramming module content prior to an assessment provides no guarantee that students will still properly absorb the material.
- The workload of other courses affects how much time and effort students dedicate to this course. Students tend to distribute their time and effort to their courses depending on the workload given by instructors. Therefore, when other courses are more difficult or ask for more requirements compared to the course in the study, the quality of the students' learning within the course is affected.
- The students' living arrangements and conditions impact the students' performance in assessments. For example, a student tasked with responsibilities at home (e.g. ensuring their younger siblings attend classes or do school work offline, helping the family business) is likely to have less time to spend on their studies.
- After taking exams, students tend to question their scores more so compared to what their mistakes were. There is little motivation for them to correct their understanding of the concepts applied in the assessment since the focus or coverage of the next exams is not the same.
- Despite having several minor assessments (i.e. discussion boards and assignments) leading up to a major assessment (i.e. course project drafts and exams), there are students who find it challenging to apply their learnings or think more critically in major assessments. Typically, major assessments require a higher level of thinking that instructors do not test in minor assessments in the interest of guiding students through the levels of thinking.
- There are instances where students would parrot concepts from the course rather than share their own insights in fear of their insights being incorrect and getting deductions.

## **3. Course Design**

The transition posed several challenges; however, it also served as an opportunity to reevaluate the courses being taught and make them even better than they were in the original face-to-face setting.

The course learning outcomes of the class are as follows:

1. Justify the importance of creativity and innovation with a solid understanding of why they are necessary to survive in today's highly disruptive environment

2. Appropriate the use of creativity and innovation tools, frameworks, models, and processes to various contexts including barriers, opportunities, and challenges
3. Design ethical solutions that address real-world needs by mastering creativity and innovation principles
4. Develop viable solutions by integrating creativity and innovation in a holistic way to achieve strategic organizational success or competitive advantage

The competency we aim to develop in the class is to design creative and innovative solutions and recommend strategies to solve organizational problems.

In the face-to-face learning setup, gauging the students' learning and providing feedback to them as often as possible was not emphasized. In a purely online learning set-up, however, more effort was required to interact with students and understand what they needed to master course concepts. Because online learning relies on the students' self-efficacy more compared to face-to-face learning, the instructors required more basis for guiding the students throughout the course. Following this, the instructors shifted to giving more formative assessments leading up to summative assessments as a feedback mechanism. The assessments of this class include the following:

- Discussion boards, where students were prompted to deepen their critical thinking and argue based on their learnings from the class. This also served as an avenue for peer learning where they were encouraged to build on each other's outputs. Discussion boards were spread out across modules and served as quick checkpoints for both students and instructors. Compared to the other assessments in the class, these took the least effort while still giving instructors insight into how the students were progressing through the class.
- Course project, where groups of students incubated startup ideas throughout the course. As their final output or culmination, students were asked to present their target market, problem statement, prototype, and business model canvas.
- Progressive course project passes, where the project groups submitted components of their course project after completing each module. The components required in each progressive course project pass focused on the concepts covered in the module most recently covered by the students. These served as the most immediate avenue for students to create original output based on their learnings. This also helped instructors correct learning difficulties prior to the course project submission, which composed a significant percentage of their grades.
- Weekly check-ins for the course project, where one week prior to submitting progressive course project passes, students presented their progress to the instructor and feedback would be given synchronously or asynchronously. These were conducted to ensure they were on the right track. They also served as an opportunity for the instructors and students to interact more and build rapport.

Through this combination of assessments, we aimed to better help students master creative thinking and innovation principles and understand and apply their learnings to the real-world setting, which both contribute to developing the competency set for the class. By becoming design thinking practitioners, the students will be able to successfully tackle challenges presented by the VUCA world by framing relevant problems, designing creative solutions, adapting quickly, and learning from the process (Krawchuk, 2019). The mindset developed by design thinking is not only applicable to school and career but to life in general as well (Razzouk & Shute, 2012).

## Mastery Learning

According to Bloom, formative assessments are the instructors' key to reducing variations in students' achievements and ensuring they all learn well. Formative assessments give instructors insight into the students' learning, which helps them develop action points regarding class handling and individual student handling. On top of providing formative assessments to the class, Bloom argues that formative assessments should come hand in hand with feedback and corrective procedures to encourage mastery learning. In this way, instructors are able to diagnose individual learning difficulties and prescribe correctives when necessary. In a one-on-one setting, typically with tutors, the instructor points out the error in the student's work then explains and clarifies the error. In a classroom setting where there are many students assigned to one instructor, it is increasingly difficult to provide detailed feedback and individualized correctives per student (e.g. directing them to pages in the module or resources that elaborate on the concept, providing additional exercises). However, it is crucial to individualize correctives so students will be directed only to the concepts or skills that require more of their effort to master. Correctives, if timed well, prevent minor learning difficulties from accumulating and eventually becoming a major learning problem. Once correctives are given, Bloom recommends that students take a second formative assessment that covers the same concepts as the first. This allows instructors to (1) verify if the correctives were successful in helping students overcome their individual learning difficulties, and (2) offer students a second chance, which empowers them. In the interest of time and workload, students were no longer provided a second assessment and were instead allowed to redo the first assessment multiple times in the study. While this strategy focuses on low achievers, it may also be applied to high achievers. Students who performed well on the first assessment and do not require correctives may be given special enrichment or extension activities to broaden their learning experiences. This is self-directed and no longer requires a second formative assessment. This strategy, as visualized in Figure 1, results in students who are better set up for mastery of the learning outcomes of the course (Guskey, 2005). In this case, the learning outcomes refer to knowledge, skills, attitudes, and competences that remain relevant in the real world.

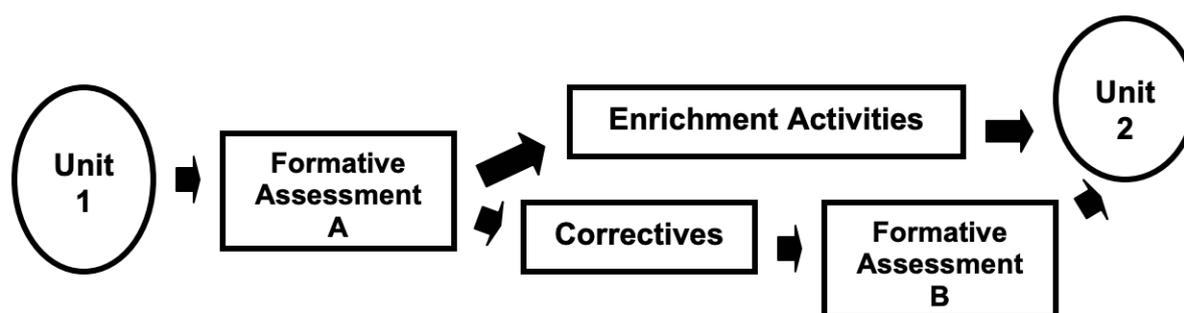


Figure 1. The Mastery Learning Instructional Process (Guskey, 2005)

Mastery learning results in two types of outcomes: cognitive and affective. Cognitive outcomes refer to the students' performance in the subject, which is typically measured by grades (Bloom & Carroll, 1971). Affective outcomes refer to the students' self-efficacy and confidence, which can positively impact the students' view of themselves and the world. When they believe they are equipped to cope with difficulties, they become less frustrated and more empowered to become an expert in the course concepts. This helps students to take on a lifelong learning mindset (Bloom, 1976).

## Bloom's Taxonomy

Bloom's taxonomy proposes a hierarchy for designing learning such that students are guided towards higher-level thinking. The cumulative hierarchy is arranged from simple to complex and concrete to abstract, where the simpler categories are prerequisites to mastering the more complex or higher categories (Krathwohl, 2002). The categories are as follows:

Table 1. Structure of the Cognitive Process Dimension of the Revised Taxonomy (Krathwohl, 2002)

Category	Definition	Associated Verbs
Remember	Retrieving relevant knowledge from long-term memory	Recognizing, recalling
Understand	Determining the meaning of instructional messages, including oral, written, and graphic communication	Interpreting, exemplifying, classifying, summarizing, inferring, comparing, explaining
Apply	Carrying out or using a procedure in a given situation	Executing, implementing
Analyze	Breaking material down into its constituent parts and detecting how the parts relate to one another and to an overall structure or purpose	Differentiating, organizing, attributing
Evaluate	Making judgments based on criteria and standards	Checking, critiquing
Create	Putting elements together to form a novel, coherent whole, or make an original product	Generating, planning, producing

In the revised taxonomy, metacognitive knowledge is put forth as a crucial part of students' learning. Metacognitive knowledge pertains to knowledge of the cognition process and self-awareness of one's own cognition. This type of knowledge includes:

1. Strategic knowledge, which refers to the student's general knowledge of strategies for learning and thinking
2. Knowledge about cognitive tasks, which refer to their knowledge of the effectiveness of the strategy and when and why to use them
3. Self-knowledge, which refers to knowledge of the self in relation to their own cognitive and motivational components of performance

According to Carver (2017), a well-planned formative assessment includes a plan to provide feedback so that students can understand the demands of the assessment, evaluate their current performance, and identify action points to bridge the gap. The role of feedback in this policy involves self-knowledge, which was one of the goals of the multiple submission policy. When students are not self-aware of what they know and do not know, it is unlikely that they will exert effort to become more knowledgeable and master the concepts being taught. Therefore, it is imperative for instructors to help students make accurate assessments of their self-knowledge (Pintrich, 2002). One way of doing so is by providing timely feedback. Explaining

students' mistakes helps them construct a new understanding of the concepts based on their mistakes, guided by the instructors' explanations (Ahmad, 2020). In the course, most of the learning outcomes already pertain to the more complex categories of the taxonomy. For example, in their course project, they are asked to create a business concept that embodies what they have learned. Though this is already the highest level in the taxonomy, the multiple submission policy provides the metacognition aspect where students are made aware of the concepts they have yet to master, which enables them to reassess what they've learned and recreate their submission. This is parallel to the iterative nature of design thinking, where the correction of misunderstandings, acquisition of deeper knowledge, and improvement of output are guiding principles for solving problems.

### **Creative Confidence**

Creative confidence is the ultimate competence developed by design thinking education and practice (Rauth et al., 2010, as cited by Bornilla & Amurao, 2020). It is defined as the natural ability to come up with new ideas and the course to try them out. This is less prominent in adults than children because as we grow older, socialize, and undergo formal education, we become more wary, cautious, and analytical. To reclaim our creative confidence, we must overcome our fears of the unknown, judgment, first steps, and lack of control. These four fears hold us back from practicing and strengthening our creative confidence. (Kelley & Kelley, 2012). The multiple submission policy specifically helps students overcome the fear of judgment and lack of control.

Fear of judgment is observed when students censor their own ideas and stick to "safe" ideas because they do not want to be judged by their peers or instructors (Kelley & Kelley, 2012). Academically, scores and grades are perceived as a form of judgment especially since it is the metric by which all students are evaluated. When grades are emphasized over feedback and learning, fear of judgment is exacerbated. Students end up avoiding difficult tasks, expending time and effort on getting to the correct answer, and even being scared of asking questions. When students are unable to overcome difficulties, they may conclude that it is because they lack ability, which they cannot do much about since it is an internal effect. This, in turn, damages their self-esteem. Formative assessments prove useful in addressing this when they become tools to communicate the mistakes and how to correct them, especially for low achievers (Black & William, 2010). The multiple submission policy takes advantage of assessments in the same manner and offers additional benefits:

- Apart from communicating the mistakes to the student, they are allowed another opportunity to apply what they've learned from those mistakes, which the instructor may provide further feedback on. This may continue for as long as the student is willing to keep improving their outputs, which measure their learnings. The multiple submission policy enables feedback loops between instructor and student instead of one-way feedback provided by the typical single submission policy.
- Because students know they can correct their mistakes, they can take more risks when answering assessments. This means they do not need to stick to "safe" ideas or censor themselves anymore.
- The multiple submission policy helps cultivate a culture of success where students can feel the belief that they can achieve, whether the belief comes from the instructor or themselves.

Fear of lack of control is observed when students are unable to accept feedback constructively and let go of the gaps in their current knowledge (Kelley & Kelley, 2012). While students may not actively be resistant to feedback, more often than not, they do not dwell on the feedback on

an assessment. The assessments in a course may not always be comprehensive and could even cover mutually exclusive concepts. When the latter is the case, students have no motivation to pay attention to the feedback and correct their understanding of the concepts. In fact, they could negotiate for higher scores without doing so, which entails asserting why their submissions are correct. With a multiple submission policy in place, the following are made possible:

- Students are incentivized to pay attention to and act on the feedback if they wish to improve their grades (Caver, 2017). In effect, because they are given a second chance, they are given full control over their performance in the assessment even after having completed it the first time.
- The policy encourages a culture of feedback and normalizes mistakes. In a study done by Bohney et. al (2018), feedback was consistently given by peers and instructors throughout a writing process. This resulted in students writing more fearlessly, making mistakes freely, and learning from feedback as the mistakes were corrected.

By creating a safety net that helps students overcome their fears of judgment and lack of control, we bring them closer to developing the competence that design thinking and this course are meant to impart to the students, which is aligned with the outcomes of mastery learning.

### **Transactional Distance**

Transactional distance (Moore & Kearsley, 2011) refers to physical (especially in distance learning), pedagogical and psychological gaps, particularly between instructor and student and among students. The larger the gap, the more negative the impact on learning. Even in face-to-face class settings, there are pedagogical and psychological gaps between instructors and students, especially when instructors are perceived as disengaged (Clifford, 2018, as cited by Ilagan, 2020). Transactional distance involves three dimensions: structure, dialogue, and autonomy (Moore & Kearsley, 2011). Structure refers to the course elements such as learning objectives, content, and assessments. More structure tends to increase transactional distance since it reduces the amount of flexibility for learners to determine their learning paths. Less structure, however, does not automatically mean reduced transactional distance. Dialogue refers to communication between instructors and students and students to students. More dialogue decreases transactional distance, which is good. Autonomy refers to the students' ability to do self-management and decide what to learn, how to learn, and how much to learn. When transactional distance increases, the required level of learner autonomy also increases. Since not all students will have the same level of capacity for self-management, the overall design of the course needs the right amount of structure and dialogue. One other thing to note is that low structure, low dialogue, and low autonomy lead to an increased transactional distance.

From the perspective of this paper, allowing multiple submissions and the rich feedback associated with each submission increases dialogue and therefore decreases transactional distance. This increases the students' self-efficacy, which promotes the affective outcomes of mastery learning

### **Multiple Submission Policy**

For assessment to function formatively, the results have to be used to adjust teaching and learning; thus a significant aspect of any program will be the ways in which instructors make these adjustments (Black & William, 2010). Thus, allowing multiple submissions is a way for both instructors and students to benefit from feedback loops. Allowing multiple submissions

also enables students to accept and work with feedback that is not clouded by overtones about ability, competition, and comparison with others (Black & William, 2010). The instructors made a judgment on the amount of detail needed to nudge the student into resubmitting improved work.

In the face-to-face set-up, feedback was usually handwritten or typewritten. Students were also free to set appointments with the instructors to discuss the feedback on their outputs, but this was rarely utilized. When the university shifted to online learning, instructors and students became dependent on digital tools to facilitate and even improve the learning experience. Digital tools became indispensable to the implementation of the multiple submission policy. Submissions were coursed through Canvas, which stored all submissions, organized files, and simplified the grading process for instructors. After going through the submissions, instructors provided feedback in several ways:

- Synchronously, where the instructor hosted Zoom or Discord video calls with the students to discuss feedback and go through clarifications if necessary. This allowed for immediate feedback and quick communication if students had questions.
- Asynchronously, where the instructor either wrote down the comments or recorded themselves thinking aloud while evaluating the assessment. For the former strategy, the official learning management system of the university was used to upload comments. For the latter strategy, comments were recorded as mp4 files. The instructors recorded themselves as they used OBS to share the screen while annotating the assessment. The asynchronous mode of providing feedback allowed students to go through the feedback whenever it was convenient for them while also having the option to replay the recording if needed.

Apart from the end of the semester, students were not given deadlines for following up on their first submission. They were free to submit again as their time and workload would allow them to.

## Results

The instances where students took the opportunity to resubmit can be classified into three types:

1. The student got a low score and intends on getting a higher score.
2. The student got a high score but wants to get an even higher score or the highest possible.
3. The student misunderstood the instructions and delivered an output that was not aligned with what was being asked for, resulting in a low score.

The first case composed most of the resubmissions and helped students bring their grades up to average or above-average scores. The second case was not as common but there were a few cases where students expressed their willingness to increase their mastery of the course concepts, thus resulting in higher grades. Because of the feedback loop, the instructors were able to challenge these students further with deeper discussions on the lessons. Without the policy, there may have been little incentive for them to challenge themselves more. The third case was also rarely observed but allowed instructors to pinpoint misleading or unclear instructions given to the class and correct them so that our mistakes do not impact the outcomes of the student. With traditional policies, the instructors' mistakes in communication would have produced outcomes that classified these students as mediocre or inferior. It is also worth noting that not all students took advantage of the policy, likely due to workload, time, or even personal constraints. Those who did submit multiple times usually submitted earlier than the deadline in anticipation of revisions, or garnered grades below their target or expected.

From informal feedback from students of the class, several students have stated that while they find the lessons difficult, allowing them to submit as many times as possible made them understand the topics a lot better. It was observed that students became more comfortable asking questions as they got used to receiving feedback on their work and having the opportunity to resubmit.

Specifically, for the asynchronous video recording feedback, there were students who explicitly stated that they appreciated it. For low achievers, it was observed that their understanding of the concept improved and it manifested in the difference between their initial and final grades for the resubmitted assessments.

The instructors encountered some challenges when implementing the practice:

- The instructors were not always able to provide feedback immediately after the students submitted their work. The delays limited the opportunities of students to submit work as often as they wanted.
- Deadlines for submission also limited the ability to submit as often as needed. For classes without deadlines, some students decided to start submissions towards the latter part of the term. In this scenario, however, students were fully aware they were in control over the grades they would receive.
- Lastly, assignments with less clear rubrics resulted in more feedback cycles than necessary. In some situations, the instructors felt exhausted after handling multiple submission cycles.

Multiple submission and feedback cycles helped not only the students but also the instructors. The characteristics of the submissions and feedback give a glimpse of what needed to be refined in the instructions. The rich feedback dialogue also helped instructors analyze the effectiveness of the learning content and method of delivery.

## **Conclusion**

Opportunities to compare the performance of students on summative assessments such as group final projects between classes allowing multiple submissions and those that do not will help in quantifying the impact of the practice in learning outcomes. We foresee that this practice may lead to the fear of grade inflation, which may elicit objections from administrators, other instructors, and even classes under the same course where the policy was not implemented. It is also likely that instructors will struggle to customize this policy based on the needs of their own classes – timings between submissions, allowed number of submissions, changes in materials provided for submissions, and other technical details. Despite this, it remains our recommendation to explore the policy further because it will aid in continuous improvement of course content, method of delivery, and assessment policies. While other classes do not necessarily aim to build creative confidence, the multiple submission policy is still expected to have the same effect.

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***Charitable Giving and Educational Possibilities: An Examination of Student Presentations on Charitable Giving Experiences in Japan***

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**Abstract**

This paper examines Japanese student participation in educational event about charitable contribution. While Japanese schools have long been involved in charitable activities, many schools and organizations have begun exploring the educational potential of charitable monetary giving. This is partly engendered by a renewed emphasis on financial education since the late 2000s. With rapid global economic changes, many educational materials became available not only to develop students' financial skills but also to expand their awareness of social implication in their financial decisions. Meanwhile, social withdrawal and decreased sense of self-usefulness in society among the youth have become grave concerns. In response to these situations, some schools and organizations have begun offering educational opportunities about charitable giving to raise students' interest in social engagement. Through an examination of charitable giving workshops and educational events held between 2020 and 2021, this paper explores the ways in which students consider the relationships between their charitable giving and social engagement. My analysis suggests that participation in these activities has helped students gain awareness of social challenges in their communities and what financial contribution can bring to charitable activities. However, it also indicates that further instructional support is necessary in some topics, such as how to make appropriate giving decisions as a group and how to sustain and evaluate one's own charitable commitments.

Keywords: Charitable Contribution, Philanthropic Education, Japan

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## Introduction

This article examines the charitable financial contributions and relevant educational events in Japan. While Japanese educational institutions often provide occasions to donate for school and other social projects, there has been renewed interest in incorporating charitable contributions into education. This article examines the social factors that contribute to this recent emphasis on charitable giving and social contribution education and how students reflect their engagement with charitable contributions. The students' comments suggest that they believed that charitable financial contributions could provide important support in solving social challenges. However, their participation in charitable giving was somewhat limited because they often failed to include topics such as how to allocate and sustain their charitable contributions.

## Charitable Giving Education and Social Contribution Education

While supporting students to become contributing members of society has long been an important goal for schools and educators, it has only been about ten years since the term social contribution education (*shakai koken kyoiku* in Japanese) emerged. Shunsuke Oishi, a strong advocate for this education, mentioned that around 2009, the Japan Fundraising Association (JFRA) and Oishi began to promote social contribution education actively (Oishi, 2020).

Soon after, other organizations began to express similar interests in promoting societal recognition of the importance of charitable activities. Books and brochures were gradually published, and workshop events began to be offered (Naka, 2020). With this trend, in 2020, a booklet proposal for promoting social contribution education (*Shakai Koken Kyouiku Suisin Foramu Inikai*, n.d.) was published. The proposal claims that social contribution education is an important area of education, and through such an education, students are encouraged to connect their education at school with their surrounding society. It also says that students can develop a sense of self-esteem through social contribution education and find meaningful roles in society. The proposal includes examples of relevant activities that promote this type of education, such as *kifu no kyoshitsu* (charitable giving classrooms) supported by JFRA.

The proposal's emphasis on connecting school education with societal contexts corresponds with the current guidelines of the Ministry of Education, Culture, Sports, Science, and Technology in Japan (MEXT). The MEXT periodically publishes new curriculum guidelines, and its most recent guidelines are scheduled to take effect in 2020 for elementary schools, 2021 for junior high schools, and 2022 for high schools. These new guidelines emphasize the importance of forging strong connections between school education and society. The guidelines encourage schools to incorporate activities to help students connect their classes with the community and world situations surrounding them. The guidelines recommend developing collaborations with local and other organizations and activities that raise awareness of local and global situations surrounding children. The guidelines claim that the new curriculum aims to promote students' understanding of the ever-changing societal situations and equip students with the knowledge and skills to challenge local and global problems (Monbu Kagaku Sho, n.d.).

The advocates for charitable giving education claim that providing education fits these new guidelines well. For example, the JFRA webpage states that charitable giving is an important way to learn about social contributions (Japan Fundraising Association, n.d.). It explains that through charitable giving, students can participate in activities that they are particularly

interested in supporting and gain a sense of social contribution. Yutataro Yonehara, a frequent workshop organizer, said similar comments in an online workshop event held at Fundraising Japan 2020 (FRA 2020), September 2020. He said that by providing activities, students could become aware of their own sense of values, develop their own decision-making skills, and learn to collaborate with others.

While volunteering is also identified as an equally important activity, charitable giving has received recent attention in programs and activities in social contribution education. This is partly because charitable donations are not often discussed in educational settings (Shakai Koken Kyouiku Suisin Foramu Inkai, n.d.). This is also because of the increased presence of non-profit organizations in Japan and the growing interest in supporting these organizations through private charitable contributions.

Since the 1990s, Japan has encountered several large-scale disasters, and they have created a variety of changes in how people think about society. The Hanshin-Awaji Earthquake in 1995 is argued to be the starting moment for current volunteer activities in Japan (Suzuki et al., 2003). Having experienced large-scale disasters, many people in Japan have realized the important role of volunteering in society. Many non-profit organizations have been established to organize volunteer activities, and legal status and other relevant laws and systems gradually began to be established. While some organizations seek governmental financial support, support from diverse citizens, including charitable contributions by individuals and groups, has become essential for running their activities.

Rapid and profound global changes in financial situations also occurred simultaneously. This led many Japanese institutions, such as the Financial Service Agency in Japan, to reexamine previous financial education (Fukuhara, 2012). The collapse of the bubble economy and financial recession since the 1990s brought social and financial challenges to many people in Japan. Meanwhile, a transformation of consumer practices occurred. For example, the use of credit cards has increased, and fair-trade products and other socially and ethically concerned consumption practices have become more widely recognized. These changing contexts brought renewed recognition of the importance of cultivating financial decision-making skills from a broader perspective. In addition to managing day-to-day expenses by individuals, new topics such as investment and charitable giving are included in the focus of financial education materials. Subsequently, lesson materials, such as guidebooks published by JFRA and the Japan Philanthropic Association (JPA), and other supportive educational events and workshops became available in the 2000s (Naka, 2020).

## **Youth in Japan**

The context surrounding current Japanese youth is another contributing factor to the backgrounds of current charitable giving and social contribution education. There has been a concern that young people may not have meaningful connections with their surrounding communities. The White Paper on Children and Young People 2021 (Kodomo Wakamono Hakusho, hereafter the White Paper), for example, provides several characteristics of young Japanese people. While 70.8% of young people answered that they wanted to contribute to society, about half of the young people (49.9%) answered that they felt useless (Naikakufu, 2021). Although it is important to examine how to interpret these data, this indicates some gaps between young people's desire for social engagement and the situations surrounding them.

This may be related to several other characteristics of current youth in Japan. The White Paper suggests a relatively low sense of self-affirmation among Japanese youth. According to the White Paper, 46.5 % of young Japanese people answered that they like themselves. This figure is lower than in other countries such as the USA, France, Germany (all of them are over 80%), and South Korea (over 70%; Naikakufu, n.d.). The White Paper also suggests that the number of students who cannot or refuse to attend schools (*futoko*) has increased from approximately 126,000 in 2015 to 180,000 in 2019. This suggests that an increased number of young people are hesitant to participate in school education. Additional data from the White Paper suggest that young people's lack of social integration is not limited to schools. Despite the shrinking young population, the percentage of young people (between the ages of 15 and 39) who do not work increased from 2.1 % to 2.9 % from 2015 to 2019. These indicators suggest that a considerable number of young people have difficulties participating in society, particularly through education and work (Naikakufu, 2021).

This context on Japanese youth is an important background for NEXT's new curriculum emphasis and the proposal. As previously noted, both emphasize the importance of strengthening the connections between school education and society. How, then, do students perceive their participation in the lessons and relevant educational events about charitable contributions? In the following, I examine three cases to explore this question.

### **Cases Examined**

This article is based on three types of educational events held between 2020 and 2021. While not all schools incorporate financial contribution education into their activities, an increasing number of schools are offering educational workshops and other related activities on this topic (Oishi, 2020). However, the diversity of charitable contribution classes and lack of comprehensive data makes it difficult to analyze these educational efforts. Furthermore, the spread of COVID-19 has many limitations in classroom and research activities. Within these limitations, this article analyzes three types of online presentations organized with the support of facilitators and organizations such as JFRA and JPA.

Each case examined in this study took a different approach to charitable contribution lessons. However, all of them participated by students and offered reflections about their experiences. Because it is often difficult to make observations at schools and other educational events, these presentations provide a good opportunity to explore how students and teachers view their participation in workshops and classroom activities related to charitable contribution education.

### **Case 1**

The first case was an online presentation by two schools. The presentation was held in March 2021 as a part of a seminar about charitable contribution education organized by JFRA. Both schools incorporated charitable giving and social contribution components into their classrooms in collaboration with JFRA facilitators.

One of the schools was a public junior high school. Charitable contribution lessons were incorporated into a series of social studies classes for third-year students. The workshops lasted for six class periods, and approximately 130 students participated. The other school was a public high school with a business major. The charitable contribution lessons were held for nine class periods over two months, and about ten students participated.

Although their levels of education are different, these schools organized their charitable contribution lessons in a similar format. As often suggested by JFRA, the first part of the lessons focused on considering how charitable contributions could bring significant social influences. With the help of facilitators and teachers, the students received a general introduction on how monetary giving could help support a variety of community challenges. The facilitators then introduced several (usually three to four) non-profit organizations and their activities to students. These organizations deal with various social challenges, such as providing mental health support for the homeless, caring for abandoned animals, and afterschool activities for young children. The junior high school students were provided information about four organizations already chosen by the facilitators and teachers. In contrast, the high school students researched and chose the organizations themselves. From the explanations provided by the organization staff members and their own research, the students learned about how organizations work to alleviate social challenges and how monetary contributions could help support their efforts. The students were then provided with money to use as a donation. After the discussions, they chose one organization for their donations.

After a brief explanation of how these two schools offered lessons about charitable contribution, the presentation moved to the participants' reflections on their experiences. In written notes and in their own comments at the event, students in both schools expressed that the lessons on charitable contribution provided opportunities to learn about social challenges more deeply. The students' comments suggested that while they knew the challenges existed in society prior to the lessons about charitable giving, they did not "feel" or consider how these challenges affected people's lives. For instance, a student from the junior high school commented that he knew it was a problem, but he previously thought that it would affect other people, not people near him. Through learning about specific non-profit organizations' activities, many students deepened their understanding of the community and social challenges.

The fact that the students were given money to donate also helped them feel closer connections between social challenges and themselves. Because they learned about how monetary contributions could help fund the organizations' specific activities and they could support them financially, some felt that their opinions mattered. The students' comments suggested that charitable contribution lessons helped the students to see how giving could be a way to be involved in their surrounding society. For example, one student answered that monetary donations were a tool to create an ideal society. Another student answered that contributions could provide opportunities to learn about situations in the world that are otherwise unknown to them.

The reflections on these activities also suggested two areas that the student participants felt somewhat difficult. One is how to make a collective decision on where to donate. Lessons about charitable giving made the students realize that diverse concerns and priorities existed even among their fellow students. For example, the teacher at the junior high school mentioned that there was a student group that could not decide on an organization for their donation, and this group took extra time to reach a collective decision. Some high school students had similar difficulties. Because they felt that all the organizations provided worthwhile services to the community, they felt that they should not choose just one organization. They eventually decided on one organization, but they also set up a fundraising campaign at their school for the other organizations.

As often mentioned in the guidebooks about charitable contribution education, the realization of such diverse opinions among students is encouraged in the class. However, the students'

comments also suggested that the students felt somewhat left alone to figure out how to deal with diverse opinions among them. As making a group decision is necessary for this type of lesson, providing ideas and suggestions to form a decision can be helpful.

Another topic mentioned was how to extend the lessons to the next step. These lessons ended through donations, and some students and teachers wondered how they could use the lessons to develop their engagement in society. In the presentation, the students and teachers had opportunities to discuss the potential next steps. Some suggestions included sending SNS information about giving, making a children's book for giving and social contributions, and participating in fundraising and other volunteer activities to support NPOs and other civic organizations. They were all in the brainstorming stage, but these discussions suggest the potential for developing further social engagement. They also indicate existing challenges regarding how lessons on charitable contribution can be extended as a sustainable form of engagement.

## Case 2

The second case is based on a web-based event called the Charity Movie Project organized by the JPA. In this event, junior high and high school students voluntarily participated and produced short movies to raise financial contributions for non-profit organizations. Unlike the first case, the participation of this event was not by schools but by individual students. The call for participation was announced in July 2020, and the final online event was held in January 2021. About 70 students from all over Japan and Malaysia participated in groups or as individuals. The participants learned about the social significance of financial contributions, and they also studied the non-profit organizations they chose (from a list of five different types of non-profit organizations) with the help of the chosen organization. With the help of the event staff, the participants moved on to making short videos to introduce the organizations' activities. With the video and written explanation of their support for the organization on the event website, the participants asked viewers for donations. Each group presented the amount of money they aimed to collect (e.g., 200,000 yen). While no groups collected the targeted donation amount, over 2,000,000 yen was donated through the event.

Although this event did not provide specific occasions for students' reflection, the students' considerations on their participation in the events were extrapolated in several ways. They often commented on how they created their short movies, through which they indicated their understanding of giving. The comments posted alongside the movies, YouTube, and other messages posted on the event site also provided opportunities to examine how students felt about their experiences through this event.

The students' comments suggested that they were impressed by the organizations' activities and became aware of how financial contributions could provide the necessary support for these activities. For example, in a blog made by one group, two students reflected on their participation in the event. With a screenshot of their detailed notes before and after their interviews with the organization staff members, they said they learned a lot about the organization and the importance of their work. They also mentioned that they were so moved that they felt that they would like others to learn about this organization and provide financial support through their short movie. Due to the COVID-19 pandemic, each group only contacted the chosen organization online, but the student comments suggested that their participation provided valuable learning opportunities for the organization and social challenges.

At the same time, the students tended to focus more on making a strong appeal for donations through their short videos. For example, in the blog mentioned earlier, the students spent the rest of the blog explaining their trial-and-error experiences of creating a movie to encourage others to give for their chosen organization. They explained some of their strategies, such as taking their mask-off so that viewers could see their facial expressions, carefully selecting information to include, and adding hand-drawings to the whiteboard. They also said that to make a stronger appeal for the viewers, they decided to make a movie that only they could make. This led them to wear school uniforms and select their school classroom as the venue for the movie.

The other participating students made similar decisions in creating short videos. Most of them wore uniforms and shot the film in the classrooms, although the event or organizations had little to do with the schools. The videos often included handwritten pictures and charts, and some included dramatized or animated stories to illustrate the social issues in which the organizations were working. While these arrangements were well prepared, they were used to emphasize implicitly that they were students who made the video. From the students' perspective, these arrangements were a strategy to deliver their messages to the viewer effectively. However, because many videos similarly stressed that they were students, the extent to which these arrangements created the students' intended results was questionable.

How the students' final short videos were presented on the web also tended to draw viewers' attention away from the intended main goal to support the activities of the organizations. While the webpage contained information about the organizations and each participant group, the donated money was placed on the top right area of the page, which made it easy for the viewers to see. Underneath the donated amount figure was the percentage that the donated money would be divided by each group's donation goal. This emphasis on the donation amounts and percentage of targeted donation goals were also clearly displayed in the final reporting web pages that appeared when this event was over. Although this information was important, it could give the impression that raising the targeted amount of money was as important as or more important than why the students made the presentations. Furthermore, the amount of money that each group raised was displayed in an easily comparable manner among the other groups, giving the impression that raising more money mattered.

As in the first case, this case also provided learning opportunities for students about charitable giving and how financial support helps organizations work for social challenges. However, short-movie production and the event arrangement tended to focus the students' and viewers' attention on collecting donations. As the donations were raised from others in this event, there were no discussions about how the participating students could also contribute money. How to make sustainable financial support was also not discussed.

### **Case 3**

The third case was a year-long class activity held by a private high school in Tokyo. The teacher who organized this class and two former students who took this class presented their experiences at FRJ 2020, an online conference about fundraising and charitable giving organized by JFRA, in September of 2020.

Prior to this event, this school participated in educational workshops on charitable contribution, such as kifu no kyoshitsu, as a part of its extra-curricular activities. Expanding on these experiences, this school incorporated charitable contribution education elements into a regular

class, titled “Kokusai Kyoryoku to Shakai Koken” [International Cooperation and Social Contribution]. The class was for third-year high school students, and about ten students who took this class met twice a week.

The students explained that the main goal of this class was to learn about social contributions and how they can play a role in dealing with contemporary social challenges. First, the students examined Japanese Official Development Aid (ODA) in the past 60 years. The students summarized that they learned about the complex relationships between business and international aid/development. One student mentioned that she learned that while they might seem at opposite ends, they could form meaningful relationships.

The rest of the class was devoted to learning about charitable contributions. The students first explored non-profit organizations and their activities. They discussed how financial contributions could help these organizations’ activities and pondered where they could provide financial support by the money that was given to them to use as a donation. Unlike case 1, the students decided to spend enough time developing their own criteria to decide which organization should receive their donation. In addition, the students decided to raise money through crowdfunding. The students set up a crowdfunding site, where they requested financial support to cover expenses to invite guest speakers, conduct research on non-profit organizations, develop their own criteria about where to give, give money to the chosen organization, and make and distribute final reports about their findings. In the end, they raised more than their targeted 300,000 yen.

The two students reflected on their learning experiences with the teacher’s facilitation. Both said that they had been interested in social contributions before this class, but they did not know what exactly it was and how they could do it. The class provided opportunities for them to realize that social contribution was something they could do to realize a better society. One student said that she had volunteered before, but she did not consider why she volunteered or the significance of her action. She knew that there were social challenges, but she felt that there had been little to do with her. She mentioned that through this class, she felt that these challenges were something much closer to her. She realized that she could make a difference by giving. As in case 1, the class provided first-hand experiences of learning social challenges and how giving could support the organizations that were confronting these challenges.

The students also found it difficult to decide where to donate. Learning about a variety of non-profit organizations with their staff members, the students noticed the strong commitment of all these organizations. This left them with a question about how to choose which one to support. One student said that after learning about the Japan Center for NPO Evaluation, she thought it was important to evaluate whether the organizations were trustworthy (shinrai). To ensure that the organizations could be trusted, they created their own criteria. However, as the other student added, even with such criteria, they found it difficult to rate each organization.

The students in this case were able to spend much more time deciding where they gave, and they also had more flexibility in deciding their class activities than the other two cases. However, these students’ comments suggest that even in such a situation, the students felt the need for further elaborate discussions and support for deciding where to give.

Like the other two cases, two topics—how to allocate funding if possible and how to make financial support sustainable—were not included in this case. As in the second case, it was assumed that there was only one organization to support. However, as people learn and find

important diverse activities of organizations, dividing donations into several organizations may occur. The lack of consideration of this topic can matter more when students try to give themselves. As in case 1, this case also did not extend the discussion of making the giving sustainable. It was assumed that the donation only occurred once. Although the students felt the importance of charitable giving, developing charitable contribution as individual or collective practice was not included in their discussions.

As in case 2, the students included fundraising efforts. Unlike case 2, however, the students also raised money for their activities. This allowed them to consider how to be accountable for their giving. A student mentioned that she was surprised to receive support from other people, but this experience gave her another look at what they were doing. She felt that it was important to explain what they did, such as why they consider giving as an important way to face social challenges. The students also made a report and held a meeting with the contributors to share what they did in the class and tentative ideas about how they could deliver similar learning experiences to other students, within and outside their own school. As in case 2, the comments in their presentation slides emphasized their perspectives as students. The image of the crowdfunding site clearly stated that they, as high students, created their own criteria for evaluating non-profit organizations. The site and presentation did not specify how useful such an evaluation created by the students would be for others. Rather, the main appeal was that the students were the main actors in such evaluations. The students seemed to consider that their own initiative could draw attention from potential donors.

## **Conclusion**

The three cases discussed have similarities and differences. The comments and reflections of the students suggest that learning about charitable giving provided them with opportunities to learn about social challenges and organizations working to deal with them. They also learned that financial contributions are an important way to support these organizations' activities.

However, the three cases also suggest divergent approaches to providing lessons on charitable contribution. Reviewing these three cases indicates two emphases of charitable contribution lessons: decision-making and fundraising. Case 1 focuses on choosing where to give. Providing students with the opportunity to choose an organization to donate led the students to investigate the organization's activities. Case 2 suggests an alternative approach. It provides students with opportunities to advocate for organizations and gather financial contributions. In the third case, these two approaches are incorporated. By provided some money to give, the students researched the organizations' activities and explored how they could make the best decision to give. Crowdfunding efforts provided first-hand experiences of raising money to support the organizations. They explored how to gain support from others by explaining the importance of learning about giving.

Although all the cases raised the students' awareness of social challenges and the importance of charitable contributions to face them, they did not address how to make them sustainable. The students' activities did not extend to the topic of how the students could allocate their own money for donations. As these lessons centered on one-time donations, there were few discussions about reviewing their charitable commitment and what could help develop charitable financial support as repeated practices. These topics, however, become important as students make their own charitable contributions.

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## ***Knowledge, Perceptions and Attitudes Towards Using Digital Games for Teaching and Learning***

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### **Abstract**

Digital game-based learning has evolved into a novel mode of instruction that increases both students' and teachers' motivation to acquire competencies. It aims to engage students and teachers in the classroom context and to pique their interest. The purpose of this study was to construct and verify a Survey Instrument on the Game-Based Learning Approach in order to characterize teachers' and students' knowledge, views, and attitudes toward game-based learning. The Content Validity Index, the Content Validity Ratio, and the Kappa Statistic Coefficient were used to validate the SIGBLA. Principal component analysis with orthogonal varimax rotation was utilized to further assess the instrument's reliability. Bartlett's sphericity test found that correlations between items were adequate for PCA when  $X^2(174) = 17301.04$ ,  $p.001$ , and  $X^2(285) = 2145.64$ ,  $p.001$ . Due to the huge sample size and convergence of the questionnaire's scree plot and Kaiser's criterion, the final analysis kept three components: knowledge, perceptions, and attitudes. The Survey Instrument on Game-Based Learning Approach (SIGBLA) utilized in this study was valid, trustworthy, and adequately exhaustive for diagnosing game-based learning approach-related aspects. Over 90% of the 274 students of which age ranges from 12 to 16 years old and 185 mathematics teachers who consented to participate in this study were knowledgeable about game-based learning and had extremely positive views and perceptions about it. Respondents perceived that incorporating game-based learning into both teaching and learning will help them develop a stronger grasp of mathematics.

Keywords: Game-Based Learning, Improving Knowledge, Attitudes, Students' and Teachers' Perception

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## Introduction

In educational contexts, digital game-based learning has gotten a lot of attention. The beneficial association between Digital Game Based Learning (DGBL) and motivation has changed instructors' focus to acquiring these approaches as a substitute for more traditional methods (Alsawaier, 2018). Iten and Petko (2016), for example, conducted empirical study on the links between game enjoyment, learner motivation, and test scores. The study discovered a positive association between gaming enjoyment and motivation in an educational setting. Similarly, a study established the impact of digital games on students' mathematics achievement. The children had increased their level of engagement in the classroom as a result of the activities (Smith, 2018).

By providing students with opportunities to learn while having fun, digital game-based learning helps students maintain their concentration on their studies. Math classes incorporated digital game-based learning. It demonstrated students' good attitudes toward digital games, as they aid in attention while also providing enjoyment (Wang & Lieberoth, 2016). As a result, it is a powerful predictor of students actively participating in lectures.

Additionally, digital game-based learning can assist teachers in properly planning courses and assessing students' learning progress. According to Wang and Lieberoth (2016), DGBL benefits teachers by motivating students to participate in class activities and enhancing their learning performance. As a result, teachers can utilize digital games as a reflecting tool to assess students' learning and help them improve their performance. Additionally, it was said that digital games assist students in being active and energetic during lectures (Licorish et al., 2018), resulting in the formation of a successful learning environment.

Despite the growing number of teachers that include digital games into the classroom, many educators remain unaware of the educational potential of digital games. The explanation for this could be that they are unaware of or unfamiliar with games that promote contextual learning and 21st-century abilities. Schrader et al. (2006) discovered that the majority of teachers in their survey were unfamiliar with or had limited experience with massively multiplayer online games and were unaware of their educational usefulness.

Similarly, Gaudelli and Talyor (2011) revealed that teachers were typically skeptical of the instructional benefits of video games, mainly due to their lack of knowledge with the genre, and they remained cautious even after playing a variety of titles. Takeuchi and Vaala (2014) discovered that the majority of teachers who employ games do so through shorter-form genres such as drill-and-practice games. While drill-and-practice games can assist kids in memorizing facts and developing necessary skills, they are incapable of teaching complex content or higher-level skills. While current game researchers have created and developed breakthrough digital games or game-based learning environments with the potential to enhance 21st-century abilities, teachers continue to struggle with selecting appropriate games.

One strategy for overcoming this obstacle is to include teachers in the game design process. Collaboration between teachers, researchers, instructional designers, and game developers would result in the development of effective digital learning games for use by classroom teachers. It is critical to understand the views of teachers and students when developing such games. Thus, this study examined teachers' and students' knowledge, views, and attitudes about game-based learning in order to close this gap.

## Methods

A mixed-methods approach was used, combining a qualitative investigation with a quantitative procedure. Participants in both the qualitative and quantitative studies were informed in writing about the study's purpose and procedures, as well as their ability to withdraw at any time. The researchers told participants that their names would not be utilized and that their information would be kept confidential. Each participant provided informed consent prior to data collection. The participation was entirely optional.

## Participants

98 (56.3 percent) of the 174 instructors who completed questionnaires were male, while 76 (43.7 percent) were female. The average age of participant teachers is 26. (33.3 percent). In terms of time spent playing, 98 (56.3 percent) spent less than an hour per day and 76 (43.7 percent) spent 1-3 hours per day. Additionally, more than half of respondents routinely incorporate games into their classrooms 96. (56.3 percent). Additionally, the majority of respondents were engaged in digital educational games 156. (96.6 percent).

Additionally, 60 (21.1 percent) of the 284 students who completed surveys were male, while 224 (78.9 percent) were female. The average age of student participants is sixteen years and twelve months (43.7 percent). In terms of time spent playing, 80 (31.1%) spent 1-3 hours every day on digital games. Additionally, the majority of respondents preferred games in class 31 (10.9 percent) frequently, 55 (19.4 percent) frequently, 134 (47.2 percent) occasionally, 32 (11.3%) seldom, and 32 (11.3%) for those who did not favor GBL in class. Additionally, the majority of respondents were engaged in digital educational games 267. (94.01 percent).

## Data Collection and Analysis

### Questionnaire

Two parallel instruments have been developed to satisfy the research objectives for teachers and students. Both instruments are made up of two pieces. The first component contains demographic information about respondents, such as their gender, age, years of teaching experience, the frequency with which they employ digital games in mathematics class, and their acquaintance with certain mobile educational games. The second section of the Survey Instrument on Game-Based Learning Approach utilized a four-point Likert scale (1-Strongly Disagree 2-Disagree 3-Agree 4-Strongly Agree), which was used to assess respondents' knowledge, attitude, and perceptions of game-based learning. The SIGBLA consists of twenty components classified into three categories. Items 1-10 elicit responses addressing respondents' perceptions of game-based learning; items 11-14 elicit responses regarding respondents' attitudes toward the game-based learning method; and items 15-20 elicit responses regarding respondents' understanding of the game-based learning approach.

A thorough assessment of the literature was undertaken to identify the content domain for measuring students' and teachers' knowledge, views, and attitudes toward game-based learning. The literature review assisted the researchers in identifying numerous research gaps in the construct's base.

The researchers chose six domain experts—from the fields of science education and game-based learning—to examine the created items' content validity. The experts made suggestions and opinions on whether certain items should be added, removed, or adjusted. According to six experts' comments and reactions, no further items were added to the face and content validity validation processes, no items were deleted, and the SIGBLA was not modified further.

The Content Validity Index (CVI), the Kappa statistic, and the Content Validity Ratio were used to quantify the domain experts' perspectives (CVR).

### **Content Validity Index (CVI)**

The researchers solicited expert feedback on the items developed for the construct of game-based learning. CVI values were determined for each individual item (I-CVI) and on a broader scale (S-CVI). For CVI, an expert panel was asked to score each scale item's relevance to the underlying construct. To prevent a neutral point, a four-point scale was utilized. On the item rating continuum, the four points were as follows: 1 = not relevant, 2 = slightly relevant, 3 = fairly relevant, and 4 = extremely relevant. I-CVI was calculated for each item by dividing the number of experts who gave a rating of 3 or 4 by the total number of experts. For instance, an item that receives a rating of 3 or 4 from four out of five experts has an I-CVI of 0.80. It is recommended that I-CVI be 1.00 in the event of five or fewer judges and 0.78 in the case of six or more judges. The S-CVI was calculated to ensure the total scale's content validity. It can be conceptualized in two ways: as S-CVI (universal Agreement) or as S-CVI (universal Agreement) (Average). The S-CVI (Universal Agreement) metric indicates the percentage of items on an instrument that received a rating of 3 or 4 from all of the panel's experts. S-CVI (Average) is a liberal interpretation of the Scale Validity Index that is calculated by averaging the I-CVI values. S-CVI (Average) places a premium on average item quality rather than expert performance. A minimum S-CVI of 0.8 is recommended for content validity (Lynn, 1986; Polit & Beck, 2006; Rubio, Berg Weger, Tebb, Lee, & Rauch, 2003).

I-CVI values ranged from 0.83 to 1 for all three dimensions' items. The S-CVI (Average) value for all SIGBLA elements was 0.983 (Table 1) and 0.975 (Table 2). The S-CVI values for the two 20-item scales were 0.90 and 0.85, respectively, indicating that the items had a high level of content validity for the construct of game-based learning.

### **Kappa Statistic Coefficient**

CVI is frequently used by researchers to determine the content validity of their findings. It does not, however, take into account the exaggerated values that may emerge as a result of the likelihood of accidental agreement. Thus, computing the Kappa coefficient facilitates comprehension of content validity by removing any chance agreement. The Kappa statistic is a consensus indicator of inter-expert agreement that is used in conjunction with the CVI to confirm that expert agreement is not due to chance. Kappa scores more than 0.74 are considered exceptional, those between 0.6 and 0.74 are considered good, and those between 0.4 and 0.59 are considered decent (Polit & Beck, 2006; Zamanzadeh et al., 2014). Kappa scores varied between 1 and 1.032 for the majority of the questions, indicating strong agreement across raters.

## **Content Validity Ratio (CVR)**

CVR is computed according to the Lawshe test to determine if an item is required to operate a construct in a set of items or not. The expert panel was asked to assign a score of 1 to 3 to each item, ranging from necessary to useful but not necessary.

CVRs were calculated for each item based on the percentage of panelists who rated it as "essential." The CVRs for both measures varied from 0.67 to 1, indicating that at least half of the panelists regarded these elements as vital to the concept of game-based learning.

## **Exploratory Factor Analysis**

The SIGBLA's validity and reliability were examined as follows: Exploratory factor analysis was used to establish construct validity (EFA). Kaiser–Meyer–Olkin (KMO) values were used to determine sample adequacy, and Bartlett's test of sphericity (ideally significant) was performed to determine the data's appropriateness for factorization. Using SPSS 20.0, EFA was performed to discover common components in the latent variable. PCA was chosen for this study since it wanted to investigate the theory of training transfer systems rather than data reduction. The number of variables to extract was determined using parallel analysis, and relevant components were discovered using the varimax rotation method. The loading and cross-loading threshold was set to 0.4, and items with loading less than 0.4 and cross-loading greater than 0.4 were eliminated. This procedure was continued until a simple structure was obtained in which loadings on putative factors were maximized and loadings on others were minimized. Cronbach's alpha coefficients were used to determine internal consistency. The Statistical Package for the Social Sciences (SPSS) version 20.0 and Monte Carlo PCA were used for statistical analysis.

## **Factorability**

Two instruments with a total of twenty items were exposed to EFA in order to determine the scale's factorial validity. Along with the sample size, the correlation matrix between items was examined to evaluate whether factor analysis was appropriate. The bulk of items exhibit intercorrelations greater than 0.30, indicating that they are acceptable for factor analysis (Field, 2009; Tabachnick & Fidell, 2007).

Factor analysis was additionally supported by the KMO and Bartlett's Sphericity tests. The KMO value was more than the minimum value of 0.60. The values .817 and .932 were deemed "meritorious" and "marvelous," respectively, indicating their suitability for factor analysis (Kaiser, 1974). Additionally, Bartlett's Test of Sphericity found a highly significant value ( $P = .000$ ), indicating that the correlation matrix differs significantly from the identity matrix.

Finally, we analyzed communalities and factor loadings to determine scale factorability. Additionally, the communality value is used to determine whether to include or omit a variable from the factor analysis. Items with a value of less than 0.5 were eliminated. Initial data examination revealed that one item on each survey had a communality of less than 0.50 and was thus eliminated.

## **Factor Extraction**

Principal Component Analysis (PCA) was chosen as the primary extraction method due to the non-normal distribution of the data. Regarding the rotation strategy, an early EFA

revealed that several inter-factor correlations were more than 0.32. This information gave sufficient justification for using varimax rotation.

Additionally, an approach for factor retention was utilized to estimate the amount of factors to retain, such as Monte Carlo PCA for parallel analysis. Visual examination of the scree plot revealed a five-factor solution for teachers and a six-factor solution for students. However, the parallel study conducted using Monte Carlo identified three underlying causes for each instrument. Additionally, only three components were maintained. Components 4 and 5 were not maintained as factors because their estimated eigenvalue was not exceeded in parallel analysis.

Additionally, demonstrated that three components were preserved. Components 4,5 and 6 were not maintained as factors because they did not exceed the eigenvalue suggested by parallel analysis.

### **3 Factor Solution**

After removing the problematic item(s) from the study, the most condensed and theoretically applicable answer was a three-factor approach. The three-factor solution was consistent with the results of parallel analysis and explained roughly 66.92 percent (for a student instrument) and 72.81 percent (for a teacher instrument) of the total variation. Knowledge, Perceptions, and Attitudes were the three variations.

Cronbach's Alpha values for the remaining 19 items and each subscale of the Survey Instrument in game-based learning above the acceptable level of 0.70 for both teachers and students (see Table 13 and 14). The three subscales all have an alpha value within the "acceptable" range of internal consistency (George & Mallery, 2003).

### **Results and Discussion**

Teacher and student participants revealed interesting results regarding the use of GBLA.

Table 1. Percentage of Item Frequencies in the SIGBLA for Teachers (N= 174)

Statements	SD (1)	D (2)	A (3)	SA (4)
<b>Component 1: Knowledge</b>				
I can determine the disciplinary content embedded in a game/ what content is being taught	1	3	53	43
I can use strategies that combine content, games and teaching approaches	1	5	32	62
3. I can repurpose an existing game for educational use	2	2	27	69
I can use my knowledge of a game to ascertain what students are learning during play in a game-based classroom	1	2	31	66
I can develop curricular activities to support students in inquiring into concepts related to the learning objectives of a game-based classroom.	4	1	25	70
I can adapt my teaching style to different learners in a game-based learning classroom	5	1	28	66
I find it more interesting to teach the subjects through online competitive games.	1	1	43	55
I think digital games can be applied in many learning contexts.	2	1	22	75
<b>Component 2: Perceptions</b>				
I think GBL can enhance students' motivation to learn	1	3	55	41
I believe GBL can help students develop higher-order thinking skills	1	5	32	62
Digital games can help students develop problem-solving skills	2	2	25	71
Game-based Learning Approach are an effective way to teach lower level factual and procedural knowledge	3	3	29	65
Digital games are an effective way to teach basic skills	2	2	27	69
I think learning shouldn't have fun as a necessary requirement.	1	2	31	66

Table 2. Percentage of Item Frequencies in the SIGBLA for Students (N= 274)

Statements	SD (1)	D (2)	A (3)	SA (4)
<b>Component 1: Knowledge</b>				
I just need a short time to know how the game is functioning	15	8	23	54
These educational games help me to think critically.	4	3	33	60
I feel competent and effective when playing	1	3	29	67
Solving the given problems/tasks in games is very interesting.	1	4	43	52
These educational games challenge my understanding of the subject.	1	5	36	58
My ability to play the game is well-matched with the game's challenges.	1	2	34	63
I find it more interesting to learn the subjects through competitive online games.	1	6	27	66
<b>Component 2: Perceptions</b>				
I think learning should not have fun as a requirement.	3	2	30	65
Online competitive games enable continuous learning.	5	37	7	51
The points-based incentive system in games is also a contributing factor to continuous learning.	2	16	43	57
Game-Based Learning could help me learn the knowledge on mathematics.	2	6	17	75
This "game-based learning" could help me apply what I learned.	7	6	9	78
I believe that GBL could extend my knowledge about mathematics.	3	3	45	49
I think activities/ tasks in educational games give me lots of benefits.	2	2	54	42
I wish I have more opportunities to learn using this game approach.	1	4	50	36
<b>Component 3: Attitudes</b>				
I prefer using games to learn compared to traditional methods in the class.	5	2	47	46
I would like to learn all education subjects using the educational game.	3	1	63	33
I hope these educational games will be available online for easy access.	7	3	28	62
I can learn according to my own pace and sequence.	11	2	34	53

## Knowledge on Game-Based Learning Approach

Four-point Likert-scale items were used to assess participants' knowledge of the Game-Based Learning Approach (responses to this set of items were determined to be reliable, Cronbach's = 0.83). 98 percent of participants expressed an interest in teaching courses via online competitive games. Additionally, 97 percent of participants believe that they may utilize their understanding of a game to deduce what children are learning during the game and that digital games can be used in a variety of learning scenarios. 96% of participants answered that they are capable of determining the disciplinary material embedded in games and repurposing current games for instructional purposes. Additionally, 95% are capable of developing curricular activities that encourage students to inquire about concepts connected to the game-based classroom's learning objectives. In a game-based learning classroom, 94% of teachers said that they can integrate content games and teaching approaches and adapt their teaching style to various learners, demonstrating that teachers were conversant with game-based learning. These findings countered Gaudelli and Talyor's (2011) findings that teachers were generally suspicious of video games' pedagogical utility, mainly due to their lack of knowledge with games, and remained skeptical of utilizing games in teaching even after playing a variety of games.

In terms of students' understanding of the Game-Based Learning Approach, 97 percent of participants' ability to play the game is well-matched to the game's obstacles. 96% of participants reported feeling knowledgeable and effective while participating in educational games. Additionally, 95% stated that educational games help students think critically and that they find completing provided problems/tasks in games extremely engaging. Additionally, 94% of respondents agreed that instructional games test their knowledge of the subject. 93 percent expressed an interest in studying the subjects via competitive online games. Finally, 78 percent of student players require only a brief explanation of how the game works. It is reasonable to assume that students who participate in this study have a high level of expertise and interest in game-based learning.

Consistent with other recent studies and reports (Sáez-López et al. 2015), this study contributes to the body of knowledge regarding game-based learning in school settings, noting that educational applications enable a variety of benefits and advantages centered on pedagogies that promote student activity, motivation, and involvement.

### **Perceptions on Game-Based Learning Approach**

A four-point Likert scale was used to assess teacher participants' impressions of the game-based learning strategy. Additionally, responses to this collection of items were determined to be reliable for the sample mentioned in this study (i.e., Cronbach's alpha = 0.93). The majority of participants (96%) agreed that GBL may increase students' enthusiasm to study, can assist students in developing problem-solving skills, and is an effective method of teaching basic skills. Around 94 percent of respondents agreed that GBL may assist students in developing higher-order thinking skills and was an effective method of imparting lower-level factual and procedural knowledge. Around 4% of participants stated that learning should not be required to be enjoyable.

In terms of student perspectives of game-based learning, 96 percent of participants agreed that educational games provide numerous benefits. Ninety-four percent of respondents believed that GBL could help them expand their knowledge of mathematics, whereas 92 percent believed that GBL could help them expand their understanding of mathematics. Additionally, the majority of participants (87 percent) believe that game-based learning can help them apply what they've learned and desire additional opportunities to learn using a game-based method. Additionally, 82% of participants agree that games' point-based incentive system contributes to continual learning. Additionally, more than half of participants (58%) believe that online competitive games facilitate continual learning. On the other hand, just 5% of respondents agreed that learning should be devoid of fun as an essential condition.

### **Attitudes on Game-Based Learning Approach**

Four Likert-scale items were used to assess teachers' attitudes toward the usage of instructional computer games in the classroom (responses to this set of items were determined to be reliable, Cronbach's alpha = 0.76). Ninety-eight percent of participants expressed an interest in and comfort with the use of digital games in the classroom. 97 percent of faculty in higher education feel that game-based learning will be a critical teaching tool in the coming years. Additionally, 96% of participants' report being more adaptable in measuring their students' learning when they use educational digital games in the classroom, and 95% report feeling competent when they use computer games in the classroom.

In terms of student attitudes toward game-based learning, 96 percent of participants expressed a desire to learn all subjects through the use of an educational game. Ninety-three percent prefer to study through games rather than through traditional classroom techniques, and 92 percent of participants anticipate that these educational games will be made available online for convenient access. Additionally, the majority of participants (87 percent) stated that they could learn at their own pace and in their own sequence.

Thus, both quantitative and qualitative findings indicate that "GBL positively impacts" teaching/learning processes, which is consistent with the findings of Biffi et al. (2016), Chen, Kuo, Lou, & Shih (2012), Kalloo & Mohan (2012 a & b), Kirikkaya, Iseri, & Vurkaya (2010), and Pinder (2013 & 2008).

## **Conclusions**

The SIGBLA is a valid and reliable tool for evaluating these variables. Although additional research is necessary to bolster the SIGBLA's future growth, preliminary data indicate that this instrument is a well-validated and reasonably complete tool for identifying the elements that affect knowledge, perceptions, and attitudes. The stability of factors was tested in this study, and all factors demonstrated a high level of internal consistency and reliability. As can be observed from the study, useful insights can be gleaned that can serve as a foundation for the researcher's development of an Interactive Mobile-Based Digital Game for Mathematics Learning. The study's findings can be used to improve understanding of student and teacher preferences and attitudes toward educational games.

The participants in this study possessed an exceptional understanding of game-based learning. Additionally, they had favorable attitudes regarding GBL and believed that by incorporating it into teaching and learning, they could broaden their knowledge of mathematics. The findings were consistent with the teacher and student participants' knowledge, views, and attitudes regarding game-based learning. The study's findings will help policymakers make informed decisions about how to invest in such instructional game applications. As a result, more in-depth research is required for this type of decision-making process.

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***An Investigation to Examine Factors Influencing University Students' Behavioral Intention Towards the Acceptance of Brightspace LMS: Using SEM Approach***

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**Abstract**

Students' perceived usefulness (PU) and ease of use (PEOU) of Brightspace by D2L Learning Management System were evaluated (LMS). Brightspace, a new cloud-based LMS were subscribed at University W in January 2021, is a virtual learning environment with no space or time constraints between instructors and students. It has interactive material, assessment, curated resources, video upload, and student progress tracking. The Google Survey Questionnaire was created online and sent to around 300 pupils through email. Online classes were conducted in July 2021 in the small private education institution, University W. Tutors were asked to assist to encourage students to complete the survey. Approximately 200 student responses were solicited. The structural model analysis revealed that students' extrinsic values influenced perceived usefulness positively. Also, intrinsic values had a beneficial impact on perceived usability. Similarly, perceived usefulness and ease of use positively influenced behavioral intention.

Keywords: Technology Acceptance Model, Intrinsic Motivation, Extrinsic Motivation, System Acceptance

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## 1. Introduction

Technology is prompting colleges and universities to accelerate their use in higher education (Hernández et al., 2017). Because of this, instructors are challenged to utilize new technologies to increase students' experiences and academic learning outcomes (Parkman et al., 2018).

A learning management system (LMS) is a web-based tool that allows students to learn online (Wichadee, 2015). By allowing the students to access the LMS 24/7, it is considered as an effective means to deliver course content and instructions to the students, while enabling instructors to create, plan implement, assess and manage course content (Bousbahi & Alrazgan, 2015).

### 1.2 Research Problem

Education institutions globally spends millions to build and maintain their e-learning system platform. Moodle and Blackboard are the more popular e-learning platforms, while other institutions developed their own (Puteh, 2008). In Malaysia, the senior management of a small private education institution, University W, decided to move away from Moodle and to partner with D2L Brightspace to integrate all aspects of online learning. University W was the first education institution in Malaysia to partner the cloud based D2L Brightspace LMS in January 2021. D2L Brightspace is able to provide access anytime (24/7), anywhere, create a variety of assessment; quizzes, assignments, online grade book, personalized feedback (Miller et al., 2020) and has an analytic component which will generate reports to help the institution to better engage the students (Peters, 2021).

While an e-learning system may benefit students, its effectiveness is determined by their acceptance.

### 1.3 Research Objectives

- i. To review the literature on the use of TAM to measure e-learning system acceptability.
- ii. To create a technology enhanced approach to assess student acceptability of Brightspace LMS e-learning platform.
- iii. To study students' adoption of Brightspace LMS e-learning platform. (Four motivation factors connected to system focus and user attributes were found. The variables are incorporated into the TAM to examine hypotheses.)

## 2. Literature Review

### 2.1 Theory of Reasonable Action (TRA) and Theory of Planned Behavior (TPB)

The Technology Acceptance Model (TAM) is based on the psychology-based theory of reasonable action (TRA) and theory of planned behavior (TPB) (Marangunić & Granić, 2015).

Fishbein & Ajzen (1980) assumed humans are logical and process information methodically.

An understanding of individual conduct and attitude was therefore created. The TRA uses behavioural intents rather than attitudes to predict behavior. In their theoretical model, Ajzen and Fishbein argued that an individual's actual action could be predicted based on their prior purpose and desire for the given activity (Davis, 1986). Behavioral intention is the fundamental

predictor of conduct, and the influence of attitude on behavior is mediated by intention. It was acknowledged that the theory was competent but had some drawbacks. One of the flaws was that people couldn't regulate their own conduct and attitudes. Ajzen (1985) explained behavior and attitude as being on a continuum of control. Illogical, complicated, or socially supported behavior is unaccountable (Wright, 1998).

To address the individual's non-volatile control, Azjen added a third element, perceived behavioural control, to the original theory, resulting in a new theory known as the Theory of Planned Behavior (TPB). TPB is TRA's extension. TPB is used to alleviate TRA inadequacies.

For example, a person's willingness to exert effort in knowledge, information, and skills impacts whether or not they will engage in a certain action (Gist & Mitchell, 1992; Carr 2005).

In other words, the intention to do an action determines the individual's performance.

TPB has been severely criticized due to a significant flaw: it only works when some parts of behavior are not within voluntary control. The theory assumes humans are rational and will evaluate and systematize based on available facts, thereby ignoring hidden and undiscovered needs. Other issues include the assumption that perceived behavioural control predicts actual behavioural control, which may not be the case (Mathieson, 1991). Despite their flaws, both models can explain and predict human behavior. However, it failed to explain system (technology) acceptance or rejection in most research (Marangunić & Granić, 2015).

## 2.2 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) was developed by Davis (1989) to predict individual's acceptance of information technology by measuring their behavioral intention. The theory proposes that perceived usefulness (PU) and perceived ease of use (PEOU) of information technology are two important determinants in predicting individuals' acceptance and use of information technology; (1) perceived usefulness (PU) which is defined as "*the degree to which a person believes that using a particular system would enhance his or her job performance*", and (2) perceived ease of use (PEOU) which is defined as "*the degree to which a person believes that using a particular system would be free of effort*" (Davis, 1989). User's behavioral intention is defined as "*a measure of the strength of one's intention to perform a specified behavior*" (Davis et al., 1989).

TAM has been extensively investigated, extended, and demonstrated to be effective in management information systems, information systems, and information technology adoption (Abbad et al., 2009; Mao & Palvia, 2006; Munguatosha et al., 2011). Studies by Asianzu (2012) found a substantial link between perceived usefulness and behavioural intention to use the system. The findings were statistically significant. Koutromanos et al. (2015) found strong support for TAM as a model for predicting students' adoption behavior.

TAM has both strengths and weaknesses. One major flaw was its inability to reveal independent variable determinants (perceived usefulness and perceived ease-of-use). TAM's other flaw is that it focuses on voluntary information systems, with no regard for mandatory use. (Chuttur, 2009).

The key concern in TAM study is to get a better understanding of potential variables that can influence information system acceptance, such as variables that can be used to extend the TAM and solve the research's unique element.

The current Covid-19 pandemic situation has changed education forever, giving a distinct rise to e-learning where learning is conducted remotely and on digital platforms (Li, C. & Lalani, F., 2020). Higher education institutions, continue to struggle with the use of e-learning systems, such as the obstacles students' face in their learning process; s decreased motivation in the students arising from delayed feedback or assistance as instructors may not be available during the time when the students need help; the feeling of isolation due to lack of physical presence (Yusuf & Al-Banawi, 2013). However, according to Park (2009), little study has been done on why students accept e-learning. To improve e-learning efficacy, teachers must first understand student motivations.

### 2.3 Motivation

Motivation is thought to influence people's actions. To perform a given behavior, people must be motivated (Lin, 2007). Extrinsic and intrinsic motivations exist. Extrinsic motivation refers to *“the performance of an activity because it leads to instrumental rewards”* (R. Saadé & Bahli, 2005), while Intrinsic motivation refers to the *“engagement motivated by pleasure or enjoyment”* (Henderson & Lepper, 2002).

This study looked into the extrinsic and intrinsic factors that influence learners' acceptance of LMS. Students' characteristics and system factors were divided into two groups in the study. Beyond the TAM three constructs, the study found four external variables (i.e. perceived ease of use, perceived usefulness and behavioural intention).

Dimension	Variable	Group	Type
Extrinsic	Information Quality	System Characteristic	Independent
	Functionality	System Characteristic	Independent
Intrinsic	Enjoyment	System Characteristic	Independent
	Learning Goals Orientation	User Characteristic	Independent
TAM	Perceived usefulness	TAM	Independent
	Perceived ease of use	TAM	Independent
	Behavioral intention	TAM	Dependent

Table 1: The Developed Model Variables

TAM research required hypotheses to guide model variable interactions (Al-Harbi, 2011; Cho et al., 2009; M. K. Lee et al., 2005; Y.-H. Lee et al., 2013; Liu et al., 2010; Padilla-Meléndez et al., 2013; Park, 2009; Sánchez & Hueros, 2010; Udo et al., 2012; Venkatesh & Davis, 2000). The combined hypotheses governed the direction of each relationship between variables in the created model.

### 2.3.1 Information Quality

Information quality is defined as *quality of outputs the information system produces* (DeLone & McLean, 1992). Huh et al. (1990) defined information quality as correctness, completeness, consistency, and currency. The importance of information quality in determining user pleasure has been proven (Katerattanakul & Siau, 1999; Y.-C. Lee, 2006; McKinney et al., 2002). Hughes et al. (2004) found that students appreciated online content and functionality up to 58 percent, whereas website usability and look were regarded at 20% and 10%, respectively.

An excellent e-learning content allows students to see its value (Tseng & Hsia, 2008). Unreliable or inaccurate data may jeopardize student acceptance (Liao et al., 2006). However, students' acceptance may be influenced by the information quality provided by Brightspace LMS. Students' adoption of Brightspace LMS is hypothesized in this study.

**Hypothesis (H1):** Information quality has a positive effect on the students' perceived usefulness of Brightspace LMS.

### 2.3.2 Functionality

Functionality is defined as *the functions provided by an information system, i.e., an e-learning system in this study, that enable the user/ e-learner to effectively achieve their goals* (Cho et al., 2009). The system's usability affects student acceptability (Hong et al., 2005). Perception of usefulness precedes functionality, according to Davis (1989). The strongest predictor of perceived usefulness, according to Hong et al. (2005), concluded that functioning was the most important criterion of perceived usefulness.

An LMS can customize a learning environment. The LMS functional parts may provide online course content, assignments, quizzes, and exams. This study sought to determine whether the functioning of Brightspace LMS affects students' acceptance or perceived usefulness. So the study hypothesizes a hypothesis to examine functioning.

**Hypothesis (H2):** Functionality has a positive effect on the students' perceived usefulness of the Brightspace LMS.

### 2.3.3 Enjoyment

Enjoyment is defined as *“the activity of using a specific system is perceived to be enjoyable in its own right, aside from any performance consequences resulting from system use”* (Venkatesh, 2000). The intrinsic characteristics do alter students' perceptions, which is why researchers in technology acceptance study use enjoyment (Venkatesh & Bala, 2008). Enjoyment was reported to diminish the perception of activities performed by users on novel systems (R. G. Saadé et al., 2008). To better understand student technology acceptance, a desire for a thorough understanding of the intrinsic and extrinsic factors was suggested. Therefore, the research hypothesizes a hypothesis to investigate the effect of enjoyment.

**Hypothesis (H3):** Enjoyment has a positive effect on the students' perceived ease of use of the Brightspace LMS.

### 2.3.4 Learning Goals Orientation

Learning goal orientation is an intrinsic motivation that refers to the “*motivation to constantly improve one's competencies*”(Runhaar et al., 2010). Learning goal orientation refers to the difficult task of improving knowledge and skills. Learning difficulties were to be considered as part of their learning (Mun & Hwang, 2003). Student acceptance of web-based information systems is determined by perceived ease of use (Mun & Hwang, 2003). In order to study the influence of learning goal orientation, the research hypothesizes.

**Hypothesis (H4):** Learning goal orientation has a positive effect on the students' perceived ease of use of the Brightspace LMS.

### 2.3.5 Perceived Ease of Use & Perceived Usefulness

The TAM model's two primary parts are perceived usefulness and perceived ease of use. (Davis, 1989; Venkatesh, 2000; Venkatesh & Bala, 2008). Perceived usefulness is defined as “*the degree to which a person believes that using a particular system would enhance his or her job performance*” (Davis, 1989). Perceived ease of use is defined as “*the degree to which a person believes that using a particular system would be free of effort*” (Davis, 1989).

Perceived usefulness has been used to anticipate word processor and spreadsheet system acceptability, user intentions, telecommuting technologies, online and wireless site usability, and system usage (Alrafi, 2007). The validity of perceived usefulness as a predictor of propensity to use IT was validated by (Davis et al., 1989).

Researchers have commonly utilized perceived usefulness to assess the success of e-learning systems (Hsieh & Cho, 2011; Hussein et al., 2007; Johnson et al., 2008; Joo et al., 2011; J.-K. Lee & Lee, 2008; Limayem & Cheung, 2008).

A few studies have identified a link between perceived ease of use and e-learning behavior intention. It was either direct or indirect. (Alharbi & Drew, 2014; Boateng et al., 2016; Farahat, 2012; Haryanto & Kultsum, 2016; Kanwal & Rehman, 2017; Mahmodi, 2017; Martínez-Torres et al., 2008; Park, 2009; Vidanagama, 2016).

Thus, the study proposes two hypotheses to examine the effect of perceived usefulness and perceived ease of use.

**Hypothesis (H5):** Perceived ease of use has a positive effect on the students' behavioral intentions to use the Brightspace LMS.

**Hypothesis (H6):** Perceived usefulness has a positive effect on the students' behavioral intentions to use the Brightspace LMS.

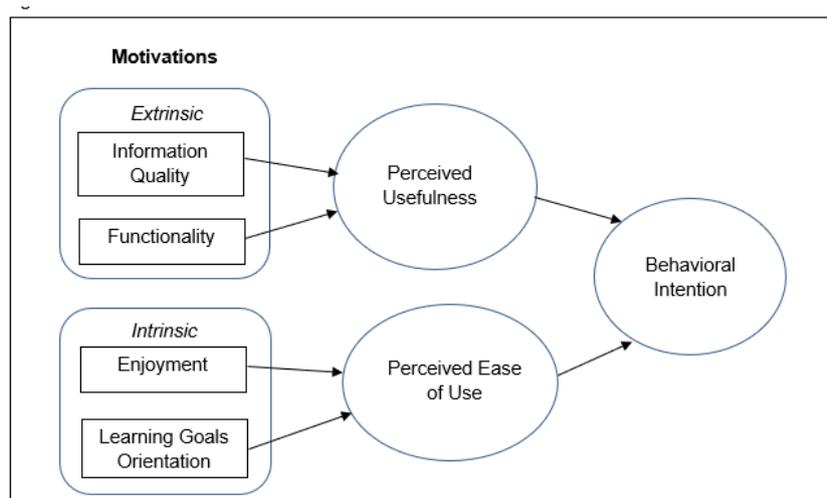


Figure 1: Theoretical Framework

### 3. Research Methodology

An online survey was conducted across University W during the May 2021 semester, to explore students' e-learning usage motivation and Brightspace LMS system acceptance. The online survey questionnaire was developed and created on Google Form and was distributed to approximately 300 students via email. Brightspace LMS was introduced to the University W's students since January 2021 semester, thus we deduced that students have little or some experience with D2L Brightspace LMS.

This study proposed an enhanced Technology Acceptance Model utilizing SEM with Smart PLS. The survey results were cleaned and four incomplete questionnaires were eliminated. Hair et al. (2013) said the suggested sample size for PLS-SEM depended on i) confidence interval of 5%, ii) statistical power of 80% iii) minimum coefficient of determination  $R^2$  values of at least 0.25 and iv) the maximum number of arrows pointing to a latent variable. While Marcoulides & Saunders (2006) state that for maximum 2 arrows pointing a latent variable, a sample size of 52 is necessary. Prior studies indicated a sample size of 100-200. (Hoyle, 1995). SMARTPLS was used to evaluate roughly 200 questionnaire replies.

### 4. Findings

#### 4.1 Common Method Variance (CMV)

Podsakoff et al. (2012) highlighted those estimated relationships could be biased if measured using a single survey instrument. Therefore, this study used the Harmon single-factor analysis and confirmatory factor analysis to assess the impact of CMV (Podsakoff et al., 2003). The principal axis factoring on all measurement items showed that the total variance explained was 49.75%. Also, the second test results using confirmatory factor analysis by modelling all items as the indicators of a single factor indicated a poor fit (CMIN/DF=5.846,  $p=0.000$ ). In conclusion, this study does not suffer from the CMV problem.

#### 4.2 Assessment of Measurement Model

Three assessments were used to assess the goodness of the measurement model: internal consistency reliability, convergent validity, and discriminant validity. Hair et al. (2011)

proposed that composite reliability (CR) should be above 0.7 to indicate internal consistency reliability. On the other hand, outer loading and average variance extracted (AVE) has been computed to assess the convergent validity. Loading values equal or greater than 0.7 and AVE value greater than 0.5 demonstrate convergent validity has been achieved (Hair et al., 2011). Lastly, Heterotrait-Monotrait Ratio of Correlations (HTMT) approach proposed by Henseler et al. (2015) was adopted in this study to analyze the discriminant validity issues. Gold et al. (2001) mentioned that HTMT<sub>90</sub> value should be lower than 0.90 to indicate no discriminant validity issues. On top of that, Henseler et al. (2015) further emphasized that the confidence interval of HTMT values should not include a zero value to indicate any potential discriminant validity issues. Table 2 and Table 3 present the measurement model and HTMT analysis results. The results showed that the measurement model in this study is valid and reliable.

<b>Constructs</b>	<b>Loadings</b>	<b>AVE</b>	<b>CR</b>
<i>(Threshold value)</i>	$\geq 0.7$	$> 0.5$	$> 0.7$
Information Quality			
INFOQTY1	0.898	0.812	0.928
INFOQTY2	0.913		
INFOQTY3	0.893		
Functionality			
FUNCTION1	0.781	0.683	0.896
FUNCTION2	0.873		
FUNCTION3	0.835		
FUNCTION4	0.814		
Enjoyment			
ENJOY1	0.942	0.861	0.949
ENJOY2	0.919		
ENJOY3	0.922		
Learning Goals Orientation			
LEARNGOALS1	0.842	0.698	0.902
LEARNGOALS2	0.842		
LEARNGOALS3	0.853		
LEARNGOALS4	0.803		
Perceived Usefulness			
PUSEFUL2	0.934	0.916	0.956
PUSEFUL3	0.913		
Perceived Ease of Use			
PEOU2	0.916	0.768	0.908
PEOU3	0.890		
Behavioral Intention			
BINTENTION4	0.848	0.805	0.943
BINTENTION2	0.920		
BINTENTION3	0.923		
BINTENTION4	0.897		

Notes: AVE, average variance extracted; CR, composite reliability. PUSEFUL1 was dropped due to low loading value and PEOU1 was dropped to improve the discriminant validity.

Table 2. Measurement Model Analysis Results

	1	2	3	4	5	6	7
1. Enjoyment							
2. Functionality	0.717						
	CI.90 (0.623-0.798)						
3. Information	0.593	0.859					
Quality	CI.90 (0.485-0.690)	CI.90 (0.790-0.921)					
4. Behavioral	0.781	0.756	0.595				
Intention	CI.90 (0.703-0.847)	CI.90 (0.662-0.835)	CI.90 (0.476-0.698)				
5. Learning Goals	0.414	0.633	0.617	0.502			
Orientation	CI.90 (0.250-0.561)	CI.90 (0.496-0.748)	CI.90 (0.458-0.750)	CI.90 (0.356-0.623)			
6. Perceived Ease	0.699	0.654	0.607	0.770	0.425		
of Use	CI.90 (0.607-0.778)	CI.90 (0.537-0.751)	CI.90 (0.477-0.716)	CI.90 (0.677-0.850)	CI.90 (0.262-0.571)		
7. Perceived	0.815	0.769	0.727	0.803	0.469	0.662	
Usefulness	CI.90 (0.751-0.869)	CI.90 (0.680-0.849)	CI.90 (0.637-0.809)	CI.90 (0.733-0.869)	CI.90 (0.290-0.627)	CI.90 (0.561-0.753)	

Table 3: HTMT Analysis

### 4.3 Assessment of Structural Model

#### 4.3.1 Assessment of Coefficient of Determination, $R^2$

The model's predictive accuracy in this study was evaluated using the coefficient of determination,  $R^2$ . The  $R^2$  indicated that information quality and functionality demonstrated a moderate level of predictive accuracy on perceived usefulness ( $R^2 = 0.501$ ). Meanwhile, enjoyment and learning goals orientation showed a weak level of predictive accuracy on perceived ease of use ( $R^2 = 0.431$ ). Despite that, both perceived usefulness and perceived ease of use illustrated a moderate level of predictive accuracy on behavioral intention ( $R^2 = 0.650$ ).

#### 4.3.2 Level of Path Coefficients Analysis

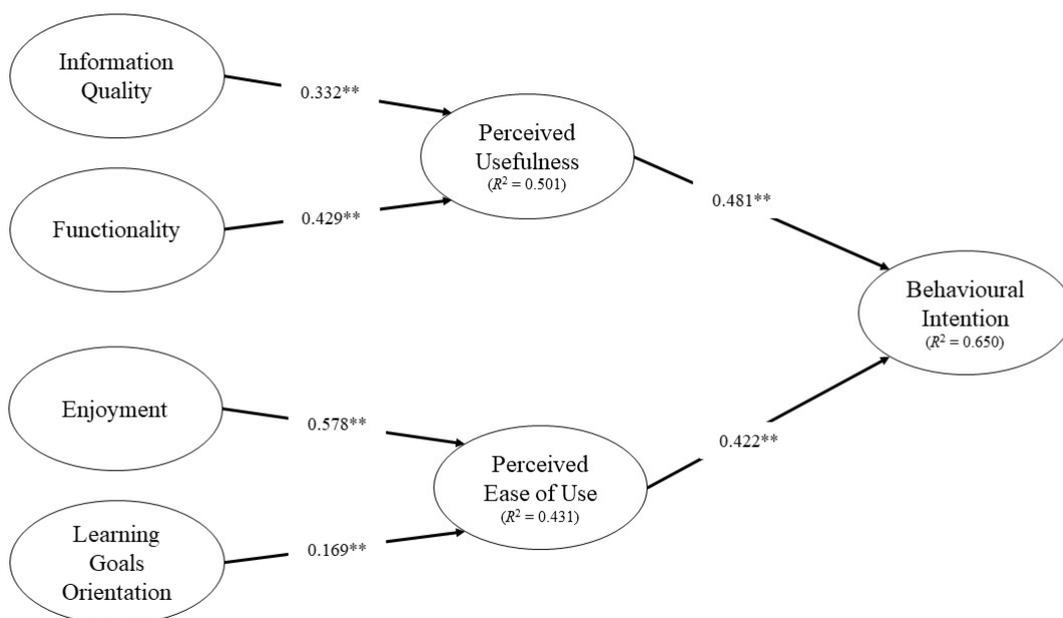
Bootstrapping procedure with 5000 subsamples was conducted to estimate the level of path coefficients. Similarly, Cohen's  $f^2$  was computed as well to examine the effect size.  $f^2$  values of 0.35, 0.15, and 0.02 are considered large, medium, and small effect sizes (Cohen, 1988). Results from the bootstrapping procedure showed that information quality ( $\beta=0.332$ ,  $p<0.01$ ;  $f^2=0.099$ ) and functionality ( $\beta=0.429$ ,  $p<0.01$ ;  $f^2=0.165$ ) both showed a positive influence on perceived usefulness. Also, enjoyment ( $\beta=0.578$ ,  $p<0.01$ ;  $f^2=0.506$ ) and learning goals orientation ( $\beta=0.169$ ,  $p<0.01$ ;  $f^2=0.043$ ) exerted a positive influence on perceived ease of use. Likewise, perceived ease of use ( $\beta=0.422$ ,  $p<0.01$ ;  $f^2=0.329$ ) and perceived usefulness ( $\beta=0.481$ ,  $p<0.01$ ;  $f^2=0.425$ ) is found to influence behavioral intention positively. As a result, all the hypothesis proposed in this study was supported. Table 3 showed the structural model analysis results. Figure 2 showed the main effects.

Hypothesis	Relationship	Std Beta	Std Error	t-value	Decision	$f^2$	5% CI LL	95% CI UL
H1	Information Quality → Perceived Usefulness	0.332	0.085	3.914**	Supported	0.099	0.030	0.213
H2	Functionality → Perceived Usefulness	0.429	0.085	5.052**	Supported	0.165	0.072	0.330
H3	Enjoyment → Perceived Ease of Use	0.578	0.056	10.399**	Supported	0.506	0.306	0.773

H4	Learning Goals Orientation → Perceived Ease of Use	0.169	0.066	2.571**	Supported	0.043	0.006	0.128
H5	Perceived Usefulness → Behavioral Intention	0.481	0.063	7.618**	Supported	0.425	0.237	0.730
H6	Perceived Ease of Use → Behavioral Intention	0.422	0.067	6.275**	Supported	0.329	0.164	0.599

Notes: \*\* $p < 0.01$  (one-tailed)

Table 4. Structural Model Analysis Results



Notes: \*\* $p < 0.01$  (one-tailed)

Figure 2. Results of the Main Effect

### 5. Conclusion

This research aims to address the gap in the technology acceptance research by extending the technology acceptance model to explain students’ acceptance of Brightspace LMS in University W. The developed model consisted of four motivation variables and three TAM constructs. The research also focused on examining the effect of extrinsic and intrinsic motivation variables on the students’ acceptance of Brightspace LMS.

Research Objective 1:

- i. To review the literature on the use of TAM to measure e-learning system acceptability.

Literature review was conducted to discuss the evolvement from TRA to TPB and finally the TAM was developed.

Research Objective 2:

- ii. To create a technology enhanced approach to assess student acceptability of Brightspace LMS e-learning platform.

Four motivation variables were added to enhanced the Technology Acceptance Model; two extrinsic motivation variables – information quality and functionality, and two intrinsic

motivation variables – enjoyment and learning goal orientation, to study University W's students' acceptance of Brightspace LMS.

Research Objective 3:

- iii. To study students' adoption of Brightspace LMS e-learning platform. (Four motivation factors connected to system focus and user attributes were found. The variables are incorporated into the TAM to examine hypotheses.)

The coefficient of determination,  $R^2$  demonstrated that information quality and functionality was able to predict the accuracy of perceived usefulness at 50.1% while enjoyment and learning goal orientation was able to predicated perceived ease of use at 43.1%. However, both perceived usefulness and perceived ease of use were able to predict the accuracy on behavioral intention at 65%.

The results showed significance of the intrinsic variables towards students' acceptance of Brightspace LMS. Enjoyment was perceived as the stronger important determinant of the system ease of use. Enjoyment (H3) was the strongest determinant of behavioral intention ( $\beta = 0.578$ , P-value  $\leq 0.01$ ). This was further confirmed by Davis et al. (1992) that enjoyment as an intrinsic motivation is critical towards user intention to use information systems. The html interface design and its functions may have contributed to students' enjoyment of the Brightspace LMS. According to Cyr et al. (2006), the system interface design determines the satisfaction level. Enjoying the LMS increases student acceptability (R. G. Saadé et al., 2008). Perceived ease of use influenced both enjoyment and learning goal orientation.

Extrinsic characteristics were also found to be significant in determining students' approval of Brightspace LMS, with functionality being the strongest determinant of system usefulness. Functionality (H2) effect perceived usefulness ( $\beta = 0.429$ , P-value  $\leq 0.01$ ). Students achieved their learning outcomes with the support of an online quiz, online assignment evaluation, learning forums, and html online course content with url connections to audios, videos, and internet content. Students will learn more effectively and appreciate the system's usefulness if it is fully working (Cho et al., 2009). Functionality and information quality had an indirect effect on behavioral intention via perceived usefulness.

From the TAM model constructs, perceived usefulness had the stronger determinant towards students' behavioral intention to use Brightspace LMS. Perceived ease of use ( $\beta=0.422$ ,  $p<0.01$ ;  $f^2=0.329$ ) and perceived usefulness ( $\beta=0.481$ ,  $p<0.01$ ;  $f^2=0.425$ ). Perceived usefulness is the more important determinant of students' behavioral intention because students would be able to achieved the course learning outcomes by performing fundamental tasks such as reading online course content, participating in the course quiz and assignment assessment, discussion forums and online chats forums (Van Raaij & Schepers, 2008). By achieving these course learning outcomes, the students will perceive the Brightspace LMS as useful and thus leading them towards system acceptance.

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## ***The Development and Preliminary Evaluation of Learners' Flow State of an Online Decision-making Detective Game***

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### **Abstract**

Information integration and decisions-making competence have gained much attention in many fields. Assisting learners to have efficient logical reasoning and to make accurate decisions, and further form their decision-making patterns is a great issue. Therefore, exploring learners' status and process in the decision-making game is the foundation for future learning and teaching. The study developed an online detective game to explore learners' flow state as a pilot study. The scenario of this game is to provide the exact position of the missing girl with limited time. The learning goal of this game is to analyze the clues in the game, applying any online tools and information to locate the missing girl's position precisely. There are 48 participants above 20 years old from E-recruitment and participate in the study online. Preliminary results suggested that participants' flow state revealed their high engagement in the game. According to one sample t-test, all nine dimensions of flow are higher than median 3. The learners revealed that they perceived well flow antecedents, especially challenge–skill balance, goals of an activity, control are high above 3.5. Even action–awareness merging which is relatively difficult to achieve high in similar game-based learning was high as well. As for flow experience, concentration, the transformation of time, and autotelic experience were high above 4. The designs and mechanism of this game based on cognitive theory are clear to guide learner joining and engage learners in the game. Future study can explore the effects of provided scaffoldings and learning behavior patterns.

Keywords: Educational Online Game, Game-Based Learning, Decision Making, Flow

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## Introduction

Decision-making is an important topic in many fields for decades. Decision-making training has gained more attention. Game-based learning (GBL) describes an environment where game content and game play enhance knowledge and skills acquisition, and where game activities involve problem solving spaces and challenges that provide players/learners with a sense of achievement (e.g., Kirriemuir & McFarlane, 2004; McFarlane, Sparrowhawk, & Heald, 2002; Prensky, 2001). During the pandemic period, DGBL became an important alternative and trend in education. DGBL is an approach, where digital games and instructional materials were integrated together. This is due to the fact that DGBL provides students with opportunities to take the initiative in their learning by analyzing, synthesizing, evaluating, and performing higher-order thinking skills, such as critical thinking and problem-solving (Dindar, 2018; Yang, 2015). Moreover, DGBL can potentially improve learning motivation (Huizenga, Admiraal, Akkerman, & ten Dam, 2009), provide immediate feedback (Yang, Lin, & Liu, 2017), develop complex problem-solving skills (Eseryel, Law, Ifenthaler, Ge, & Miller, 2014), reduce anxiety (Pham Q, Khatib Y, Stansfeld S, et al, 2016) and enhance learning performance (Chen & Lin, 2016; Wang & Chen, 2010).

State of flow, referring to high levels of engagement, is important to enhance performance and other learning outcomes. Students with high flow are fully involved in the activity referred to high levels of interactivity, challenge, and feedback (Engeser, 2012). Several researchers have found a positive correlation between students' flow experiences and learning outcomes in game-based learning environments (Hsu & Lu, 2004; Kiili, 2005). Correspondingly, these important factors in students' game flow experiences should be considered when applying game-based learning.

According to Young et al. (2012), successful GBL is not simply providing students with a game and expecting increased motivation and knowledge acquisition; therefore, educational games need to be designed and researched with careful attention to contemporary learning theories. Game designs without appropriate learning/cognitive theories as base would cause negative effect (Charsky & Ressler, 2011; Hong, Cheng, Hwang, Lee, & Chang, 2009; Hwang, Sung, Hung, & Huang, 2012; Provenzo, 1992).

Developing educational game to optimize engagement is necessary. Therefore, game mechanisms of educational games need to be designed and researched with careful attention to integrate instructional strategies and contemporary learning theories (Young et al., 2012; Kebritchi, 2008).

Situated learning (Brown et al., 1989) refers that learner can explore the knowledge and cultivate competence in the real-world context. Game-based learning are gradually applied in different fields of education and provide vivid learning experience (Prensky, 2003). Simulation games scenarios and roles-play may enhance performance (Bayir, 2014; Hou & Lin, 2015; Hou & Liu, 2015; Hou et al., 2016), promote learners' motivation and engagement in learning (Bos & Shami, 2006; Pata, Lehtinen, & Sarapuu, 2006; Wishart, Oades, & Morris, 2007). This study developed an educational digital game based on cognitive theories and flow theories (Lin & Hou, 2016; Hou & Lin, 2015; Hou & Liu, 2015; Hou et al., 2016) – *Finding the little girl Yu* to promote students' engagement and achievement in decision making training.

## Methods

### Game Design- *Finding the little girl Yu*

The game employed in this study was *Finding the little girl Yu*, a detective and reasoning educational game to train decision-making ability developed by National Taiwan University of Science and Technology Mini Educational Game (NTUST-MEG) research group. Due to covid-19, this is a virtual version; this game designed on Google earth and google document and learners communicate through google meet. Also, they can use all the information and resource from internet. *Finding the little girl Yu* integrates situated learning with a lost girl Yu case, learners have to use their observation, clue analysis, strategy planning and most important decision-making ability. The main game mechanism is clue analysis to promote learners to observe the detail of the clues from the police. Then, learners through decision-making and strategy planning provide the final position of little girl Yu to the police. The whole game is shown as Figure 1 and Figure 2 is the capture shoot of Finding the little girl Yu game experiment.

The participants of this study were 48 participants from e-recruitment from Taiwan and were grouped into 3 people group(n=12) for the learning activity. To evaluate learners' state of flow, this study referred to Kiili's flow scale (2006), which was translated and revised by Hou and Chou (2012). The flow scale includes two dimensions, namely the flow antecedent and flow experience. All scales were scored on a five-point Likert scale. The reliability of the flow questionnaire of group team (Cronbach's alpha=0.87) and personal team (Cronbach's alpha=0.88) showed high internal consistency.

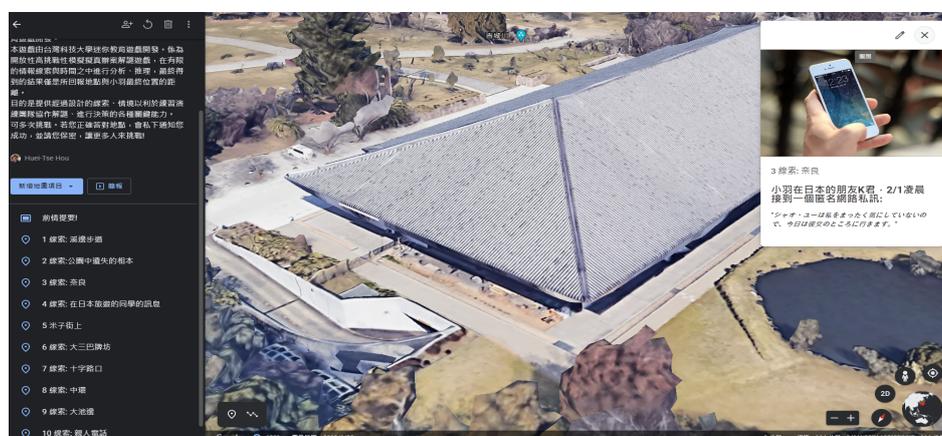


Figure 1. Content of *Finding the little girl Yu*

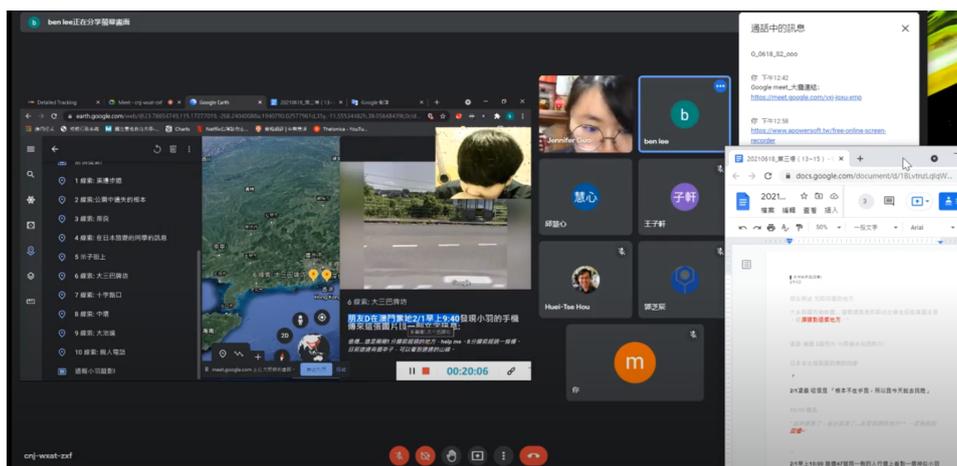


Figure 2. Capture Shoot of *Finding the little girl Yu* Game Experiment

Table 1. Research Procedure

Procedure	Session time	Description
Game instruction	10 minutes	Game instruction and familiar with the game
Playing game	60 minutes	Each group starts play the game.
Posttest	10 minutes	After playing the game, students were asked to complete Flow scale and game acceptance were administered in this session.
Interview	10 minutes	Interview each players their experience and feedback about the game

To evaluate the game *Finding the little girl Yu*, a 90 minutes learning activity was employed. The procedure was shown in Table 1. Participants joined in the google meet for game instruction. They collaborate to finish the task through communicate with google meet and google document. After they all were familiar with the game and interface, they started the game on google earth. After learners completed playing the game, they then took flow scale survey.

## Results and Discussions

*Finding the little girl Yu*, was developed based on cognitive theories, flow theories and situated learning. The game was to assist students to train their decision-making ability. This preliminary research was to evaluate the game with the learners’ state of flow.

Table2 revealed the descriptive analysis and one sample t test of the learners’ flow state. As shown in Table 2, students in general positively evaluated the game – *Finding the little girl Yu* and the overall flow score ( $M=3.98, SD=0.44$ ) significantly higher than median 3 ( $t=15.24, p<0.00$ ). Regarding flow antecedents, *Finding the little girl Yu* provided clear goals and feedback, sense of control and playable. These positive perceptions of flow antecedents revealed that this game had features to assist student positively engaging in the game. Especially challenge–skill balance, goals of an activity, control are high above 3.5. However, one thing to note is that action–awareness merging was significant difference from median 3. This result was different from previous researches (Chen & Hou,2020; Kuo et al., 2018). This finding might be attributed to the nature of this game was designed for training ability and previous studies mainly focus on specific domain knowledge. In this game, learners knew what they were doing and what they were doing for. In knowledge based educational game,

the learning goal were wrapped in the game mechanism and rule, learners would not easily perceive they were learning. Therefore, both game design and the type of educational game might be the reason. Regarding the flow experience, concentration, the transformation of time, and autotelic experience were high above 4. The result showed that learners had engaged in the game.

Table 2 Descriptive Analysis and One Sample T Test of Learners' Flow

Dimension	<i>M</i>	<i>SD</i>	Cronbach's Alpha	<i>t</i>	<i>p</i>
Flow antecedents	3.86	0.44	0.73	13.33 <sup>***</sup>	0.00
Challenge-skill balance	3.71	0.62	0.33	7.94 <sup>***</sup>	0.00
Goals of an activity	4.28	0.51	0.33	17.24 <sup>***</sup>	0.00
Unambiguous Feedback	3.62	0.64	0.52	6.68 <sup>***</sup>	0.00
Control	3.93	0.78	0.64	8.22 <sup>***</sup>	0.00
Action-awareness merging	3.73	0.66	0.24	7.66 <sup>***</sup>	0.00
Flow experience	4.08	0.55	0.85	13.56 <sup>***</sup>	0.00
Concentration	4.38	0.70	0.89	13.56 <sup>***</sup>	0.00
Time distortion	4.15	0.90	0.82	8.90 <sup>***</sup>	0.00
Autotelic experience	4.33	0.68	0.90	13.48 <sup>***</sup>	0.00
Loss of self-consciousness	3.10	0.93	0.68	0.77	0.44
Overall Flow	3.98	0.44	0.87	15.24 <sup>***</sup>	0.00

\*  $p < .05$  \*\*  $p < .01$  \*\*\*  $p < .001$

## Conclusions and Limitations

To sum up, *Finding the little girl Yu* integrating situated learning and clue analysis with cognitive design was a well-designed educational game to engage learners. Both group team and personal team learners involved in the game.

The context of finding a lost girl was embedded in the game to enhance the degree of situation and authenticity, which further enabled student being more immersed in game to engage learners and promote decision-making training. This preliminary study showed students' positive evaluation in terms of engagement Especially, action-awareness merging was significant difference from median 3. Which is different from previous researches (Chen & Hou, 2020; Kuo et al., 2018). The reason might be that the nature of this game was designed for training ability and previous studies mainly focus on specific domain knowledge.

For the further study, deep analysis of ARCS, anxiety, motivation, gender, high/low learners' difference, and decision-making process behavior will be conducted. Also, how scaffolding in the game might help student to learn better will be investigated. Lastly, interview is needed for further understanding learning gain and triangulation as well.

## **Acknowledgements**

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***Why Don't You Play the Game? Evaluating the Use of Gamification in an Undergraduate Finance Course***

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**Abstract**

The board game *Monopoly* is used as a gamification tool in an undergraduate finance course in a private business school in the Philippines. The use of *Monopoly* as a gamification tool is evaluated using Han's (2015) adaptation of the spiral curriculum and Landers's (2015) theory of gamified learning. According to Han, the spiral curriculum "is the circular model best suited to gamification as pedagogy because it allows students to learn and practice basic skills in order to master advanced tasks." Meanwhile, Landers's theory of gamified learning posits that "gamification affects learning via moderation when an instructional designer intends to encourage a behavior or attitude that will increase learning outcomes." In the undergraduate finance course, the *Monopoly* board game is used as (i) a means to teach basic principles of financial statement analysis and financial forecasting, consistent with the spiral curriculum and (ii) a moderating tool to help influence key attitudes brought about by prior experiences and preconceived notions on the subject, consistent with Landers's theory of gamified learning. Findings obtained via a qualitative explanatory approach from 101 undergraduate business students suggest that the use of the *Monopoly* board game is effective as a gamification tool, as seen in students' ability to proceed to more advanced topics in the finance course and new opinions on finance as expressed at the end of the course. Recommendations for future study include using a control group, conducting studies at the beginning and end of the course, applying quantitative methods, and addressing exogenous factors that may affect the results.

Keywords: Finance Education, Gamification, Gamified Learning, Moderation, Spiral Curriculum

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## Introduction and Review of Related Literature

The study revolves around evaluating the use of gamification in a finance course for undergraduate business students. The gamification tool used is the board game *Monopoly*, which is used as a learning medium for financial statement analysis and financial forecasting. The research evaluates the use of gamification in an undergraduate finance course using two major frameworks: (i) Han's (2015) adaptation of the spiral curriculum and (ii) Landers's (2015) theory of gamified learning. The use of gamified learning is evaluated via a qualitative explanatory approach. The research concludes with suggestions on future research on the subject matter.

Gamification is defined as “using game design elements in non-game contexts to motivate and increase user activity and retention” (Deterding et al., 2011).

In the context of learning, Landers (2015) defines gamification as “the use of game elements, including action language, assessment, conflict/challenge, control, environment, game fiction, human interaction, immersion, and rules/goals, to facilitate learning and related outcomes.” For Dichey and Dicheva (2017), gamification in education refers to “the introduction of game design elements and ‘gameful’ experiences in the design of learning processes.” In the context of this study, gamification of learning is used interchangeably with gamified learning, game-based learning, gamified pedagogy, and other variants of the term.

Substantial research has emerged on the evident benefits of gamification for learning and education. Tasnim (2012) states that “the use of non-traditional interventions, such as games” are “valuable teaching methods.” Shubik (2002) argues that games “help to raise questions relating to the relationship between a game and the reality the game represents.” Similarly, Cruz et al. (2018) identify the ability “to relate theoretical content to practical reality” as a key benefit of gamification.

A key benefit cited in previous research was influencing learners' attitudes, activities, and behaviors, such as increasing motivation or improving engagement among learners. Caponetto et al. (2014) posit that gamification “has been adopted to support learning” and “[has been adopted] to address related attitudes, activities, and behaviors.” Dichey and Dicheva (2017) believe that gamification is “a developing approach for increasing learners' motivation and engagement by incorporating game design elements in educational environments.” Buckley, E. Doyle, and S. Doyle (2015) refer to gamification as a “pedagogical innovation that may increase student engagement and enhance learning.” Similarly, Meesuk and Srisawasdi (2014) posit that “developing game-based learning could enhance students' motivation, perception, and learning outcome.” For Tasnim (2012), games that include a prior or post-game analysis “promote greater involvement of classes, therefore causing a lasting effect on learning.”

Findings on the efficacy of gamification in learning are mixed. Buckley, E. Doyle, and S. Doyle (2015) suggest that gamified learning may “suit some students and their learning styles better than others.” Dichey and Dicheva (2017) state that there is “still insufficient evidence” that gamification “produces reliable, valid, and long-lasting educational outcomes, or does so better than traditional educational models.” Bauer, Callan, and Landers (2015) admit that “many potential pitfalls of gamification implementations are not yet well explored.”

Gamification has been identified as a “valuable teaching method” for business and entrepreneurship classes, where the three most applied teaching methods are lectures, case studies, and group discussions (Tasnim, 2012).

Board games have been identified as an effective device for gamification. Educational board games are said to encourage students’ learning motivation (LeBlanc & Bearison, 2014); to increase learning achievement (Hou & Lin, 2015); and to enhance students’ motivation, perceptions, and participation of learning in the classroom (Chen et al., 2020). In a study conducted by Chen et al. at a junior high school in Northern Taiwan, students that participated in gamified learning via board games were found to show “marginally reduced math anxiety.” Chen et al. suggest that “students’ engagement in the gamification instructional activity leads to their better learning performance.”

Tasnim (2012) highlights that a board game “is inexpensive, easy to adapt both indoors and outdoors, and with proper debriefing, becomes a valuable tool for fun and experiential learning.” Cruz et al. (2018) similarly highlight the affordability of board games as learning devices. Chen et al. (2020) cite the wide implementation of card games and board games—collectively known as “unplugged games”—for subjects like chemistry, creative thinking, environmental chemistry, and mathematics.

There is a dearth of literature that tackles the use of gamification in business education at the undergraduate level. Almirall, Romero, and Usart (2011) cite how game-based learning “has been of great efficacy to practice the concepts and procedures learnt” in an undergraduate finance course. deCos (2015) offers a tangential remark, though not in the university setting, suggesting that “banks could use gamification as an effective way to promote their brand and grow their customer base by delivering financial education to children.” A previous study worth noting is that of Cruz et al. (2018), who used the *Monopoly* board game in three classes on “Investment Analysis.” *Monopoly* is a classic board game that involves the buying, selling, development, and leasing of properties. According to Cruz et al., results obtained in the classroom were “very positive” after the use of *Monopoly* as a teaching tool.

## **Methodology**

This section begins with a discussion of the two major theoretical frameworks used, followed by a discussion on how gamified learning was implemented for undergraduate finance courses in a private business school in the Philippines. The two major frameworks used are (i) Han’s (2015) adaptation of the spiral curriculum and (ii) Landers’s (2015) theory of gamified learning.

### **Theoretical Framework: Spiral Curriculum**

The first major theoretical framework used is the spiral curriculum as adapted by Han (2015). Initially conceptualized by Jerome Bruner (Gibbs, 2014), the spiral curriculum involves students revisiting a topic several times and achieving mastery learning. With the spiral curriculum, “the complexity of the topic is increased with each visit so the new learning is connected to the old learning.” As such, “curriculum and content build upon one another, supposedly in skill growth as well as content complexity and depth.”

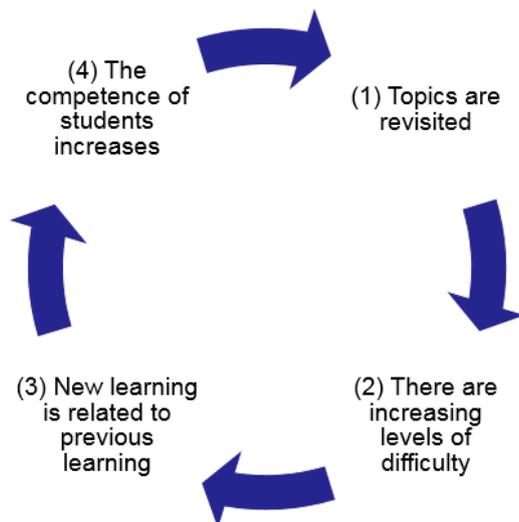


Figure 1: Key Features of Spiral Curriculum

Han argues that the spiral curriculum “is the circular model best suited to gamification as pedagogy because it allows students to learn and practice basic skills in order to master advanced tasks.” According to Han, “students may become more self-motivated learners interested in learning more from the course content and from each other” with a gamified pedagogy.

**Theoretical Framework: Landers’s Theory of Gamified Learning**

According to Landers’ theory of gamified learning (2015), gamification “affects learning via moderation when an instructional designer intends to encourage a behavior or attitude that will increase learning outcomes by making pre-existing instruction better in some way.” Through what Landers refers to as a “moderating process,” the relationship between instructional design quality and outcomes is strengthened.

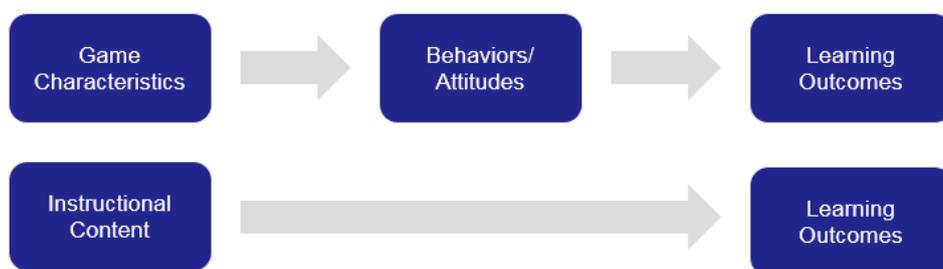


Figure 2: Illustration of Landers’ Theory of Gamified Learning (2015)

Landers’s theory has four propositions: that (i) instructional content influences learning outcomes and behaviors; (ii) behaviors/attitudes influence learning; (iii) game characteristics influence changes in behavior/attitudes; (iv) game elements affect behaviors attitudes that moderate instructional effectiveness; and (v) the relationship between game elements and learning outcomes is mediated by behaviors/attitudes.

#	Proposition	Landers's Explanation
1	Instructional content influences learning outcomes and behaviors.	The goal of gamification cannot be to replace instruction, but instead to improve it. If the instructional content does not already help students learn, gamification of that content cannot itself cause learning.
2	Behaviors/attitudes influence learning.	Gamification that provides rewards for high-quality notes or allows learners to control the frequency of meta-cognitive reminders is likely to improve learning.
3	Game characteristics influence changes in behavior/attitudes.	In the context of gamification, any behavior or attitude can be targeted because this behaviour or attitude is the outcome of the gamification effort. The degree to which gamification efforts can effectively create or increase such behaviors and attitudes remains an unanswered empirical question.
4	Game elements affect behaviors/attitudes that moderate instructional effectiveness.	The goal may be to increase student effort (behaviors) or simply to convey to students that assignments are fun (an attitude). By gamifying this course, the instructor likely hopes students will complete more assignments and with greater enthusiasm.  The inclusion of a game element would have no effect on learning if the instructional design was not already sound.
5	The relationship between game elements and learning outcomes is mediated by behaviors/attitudes.	In the theory of gamified learning, for game elements to be effective via the mediating process, game elements must cause the target behavior and the target behaviour must increase learning. For example, if gamification successfully created an impression of fun in students, but that fun did not affect learning, the game elements would ultimately have no effect on learning.

Figure 3: Propositions of Landers' Theory of Gamified Learning (2015); Explanations Directly Quoted from Landers

### Gamified Learning in an Undergraduate Course

The board game *Monopoly* is used as a gamification tool in an undergraduate finance course in a private business school at a Philippine-based university. In this business school, students typically take two courses (six units) of accounting prior to taking the finance course (three units) in discussion. The two accounting courses are (i) financial accounting, which covers introductory accounting concepts, financial statements, and financial ratio analysis; and (ii) managerial accounting, which covers cost-volume-profit analysis, variances, budgeting, and capital budgeting. The finance course tackles financial statement analysis, financial forecasting, time value of money, capital budgeting, fixed-income, and equities.

Financial Accounting	Managerial Accounting	Finance
Introduction to Accounting		Financial Statement Analysis
Journaling, Ledger, T-Account, Trial Balance, Adjusting Entries	Cost-Volume-Profit Analysis	Financial Forecasting
Balance Sheet	Variances	Time Value of Money
Income Statement	Budgeting	Capital Budgeting
Cash Flow Statement	Capital Budgeting	Fixed-Income
Ratio Analysis		Equities

Figure 4: Topic Coverage of Accounting and Finance Courses

The syllabus of the finance course where gamified learning was applied is structured as follows: It begins with financial statement analysis, transitions to financial forecasting, proceeds to time value of money, then concludes with applications of time of value of money such as capital budgeting, fixed-income, and equities. Instruction for the course is delivered both synchronously through live lectures and asynchronously via online modules and pre-recorded lectures. The course assessments include long exams, essays, presentations, and a capstone project; there are assessments done individually and assessments done with learning teams. The capstone project involves the analysis and valuation of a publicly-listed company; the capstone project is divided into smaller tasks, including the recording of historical financial statements, analyzing macroeconomic and industry trends, analyzing company strategy, generating financial forecasts, and valuating the publicly-listed company.

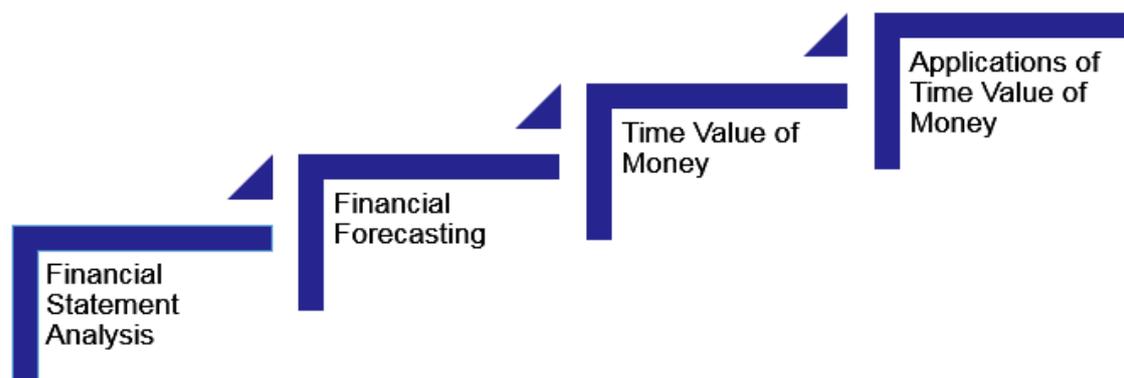


Figure 5: Finance Course Structure

In this finance course, the *Monopoly* board game is used to moderate learning in (i) financial statement analysis and (ii) financial forecasting. Students are instructed to play three one-hour rounds of *Monopoly* and record their transactions while doing so. They are tasked to develop the financial statements (income statement, balance sheet, and cash flow statement) in a Microsoft Excel file and construct a short write-up explaining key trends seen in their financial statements. The relevant financial accounts in this assessment include cash; property, plant, and equipment; equity; rental revenue; rental expense; non-recurring items

(e.g. Chance, Community Chest); and tax. The students are then tasked with extending their financial statements into financial forecasts.

### Description in *Monopoly* Gameplay

1. Each Monopoly round is like one calendar year. Meaning, you continue where you left off in the previous round. That **means the starting balances of your balance sheet for the new round are the ending balances of the previous round.**
2. For the Microsoft Excel file with your financial statements, use formulas to generate net/total amounts (e.g. total assets, net income). **Do not hardcode computational items!**
3. Place the item breakdown for your revenue, costs, and properties in the input tabs (Revenue, Costs, PPE). Then link the resulting totals or net values to the balance sheet, income statement, and cash flow statement.
4. **Be careful when classifying accounts.** It is tempting to lump all payments and negative cash flows as operating expenses--double-check the nature of transactions arising from Chance and Community Chest cards! Some are loans, capital stock, etc. and should be correspondingly classified in the right accounts.
5. Suppose a player landed on a property and did not buy, Monopoly rules call for a bidding process to see who gets ownership of the property. If you bought a property for an amount above or below its market value (the price on the board), make sure to note these as **capital gains/losses.**
6. Assume **straight-line depreciation.** Assume the following useful lives and zero salvage value.
  - Property - 30 years
  - Railroads - 20 years
  - Utilities - 40 years
7. If a player runs out of cash, he/she has the following options to avail of cash:
  - Mortgage - subject to normal Monopoly rules
  - Short-term loan - maximum of 80% of fair value of most expensive property, to be charged interest rate of 2.5% per round
  - Long-term loan - maximum of 200% of fair value of most expensive property, to be charged interest rate of 6.0% per round
8. Make sure to place the photographic proof of your end-fiscal year balances in the Pictures tab. Label them accordingly.

Figure 6: Rules of the *Monopoly* Assessment



Figure 7: Students’ *Monopoly* Gameplay (in-person format)

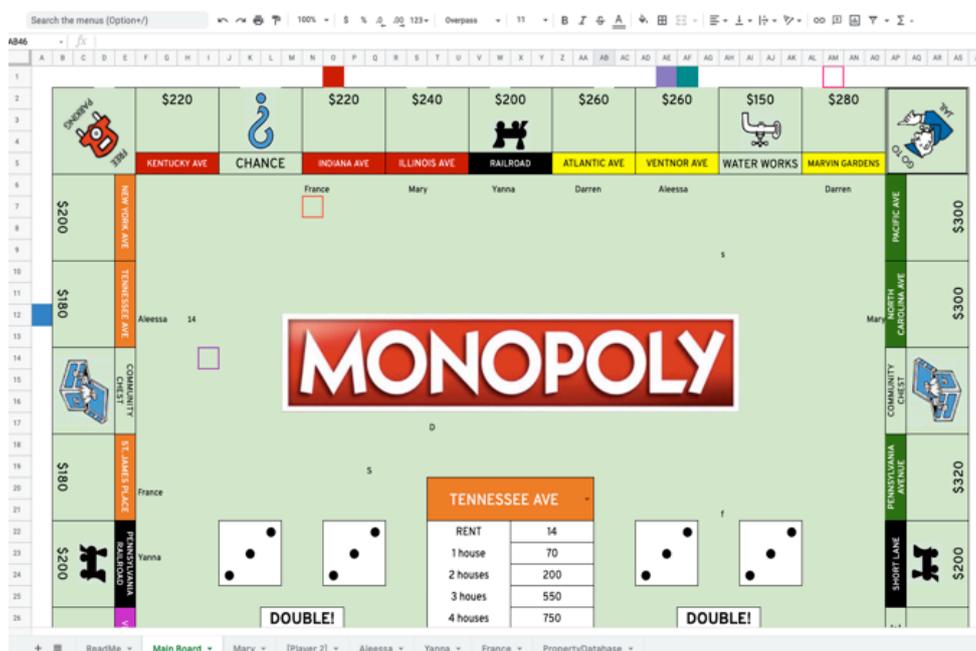


Figure 8: Students’ *Monopoly* Gameplay (online format via Google Sheets)

Landers (2015) identifies nine elements that define game-based learning, namely action language, assessment, conflict/challenge, control, environment, game fiction, human interaction, immersion, and rules/goals. The table below identifies the various elements, as defined by Landers, in the *Monopoly* gameplay in the finance course.

Element	Definition	Description in <i>Monopoly</i> Gameplay
Action language	The method and interface by which communication occurs between a player and the game itself	Students play either the <i>Monopoly</i> board game either in-person or virtually via video conferencing facility. The action language is defined by the <i>Monopoly</i> board and its corresponding elements.
Assessment	The method by which	Students are tasked to record their

	accomplishment and game progress are tracked	transactions then generate financial statements based on their <i>Monopoly</i> gameplay, with an accompanying short write-up explaining the key trends in their generated financials. Students then extend their financial statements into financial forecasts.
Conflict/challenge	The problems faced by players, including both the nature and difficulty of those problems	Students encounter challenges that put pressure on their financials throughout the gameplay, such as lacking cash to pay rent or being thrown in jail.
Control	The degree to which players are able to alter the game	The rules are fixed; however, students are able to make certain decisions on acquisitions, capital structure, taxes, etc.
Environment	The representation of the physical surroundings of the player	Real life businesses are business owners are represented in the <i>Monopoly</i> gameplay. Students assume the role of a landlord overseeing investment properties. Each <i>Monopoly</i> round is equivalent to one fiscal year.
Game fiction	The fictional game world and story	
Human interaction	The degree to which players interact with other players in both space and time	While the assessments are individual, the gameplay is done within learning teams, resulting in human interaction.
Immersion	The affective and perceptual experience of a game	Students interact with their peers within the learning team, as well as with the fictional world created by the gameplay.
Rules/goals	Clearly defined rules, goals, and information on progress	On top of the standard <i>Monopoly</i> gameplay rules, the instructor provides rules on the assessments with clearly defined criteria.

Figure 8: Elements of Gamified Learning in the *Monopoly* Assessments

Worth noting is that the gamified assessments that use *Monopoly* are both done after the relevant instruction has been delivered for financial statement analysis and financial forecasting. The finance course was structured in such a way that students learn financial statement analysis and financial forecast first, before proceeding to do the *Monopoly* gameplay and assessments.

### Individual Assessment: The Monopoly Simulation

**TASK**

In line with the attitude of beginning with the end in mind, allow me to start the module by discussing the outputs I will be expecting from you at the end of the module. There will be two major assessments for Module 2, one individual and one group.

For the individual assessment, you will be building your own financial statements from scratch and writing an analysis based on *Monopoly: The Board Game*.



### Mechanics

The idea is to play Monopoly with the members of your respective learning teams for three 50-minute sessions (combined total of 150 minutes). You will record the corresponding transactions and events in each turn, then build the financial statements. After which, you will do common size analysis and ratio analysis then produce a one-page write-up providing commentary on your performance as a player.

Note that while the game will be played in learning teams, the output is **individual**.

Kindly coordinate with your respective learning teams on when to schedule your Monopoly play time.

### End-Output

The end-output of this module is to produce financial statements from your Monopoly turns. The financial statements **will be presented in Excel format**, with the following tabs:

1. Balance sheet
2. Income statement
3. Cash flow statement
4. Revenue
5. Costs
6. Property, plant and equipment
7. Common size analysis
8. Ratio analysis
9. Pictures (for your cards and cash at the end of each 50-minute round)

### Figure 9: Excerpts from Online Canvas Course Showing *Monopoly* Assessment Instructions

The topics of financial statement analysis and financial forecasting are revisited in future topics and assessments, the most notable of which is the capstone project involving the analysis and valuation of a publicly-listed company. The ideal trajectory for students taking the course would be to master the basic principles of financial statement analysis and financial forecasting first before extending the topic applications to their capstone project.

### Results

The results are based on a qualitative explanatory approach, with the sample covering three finance classes: one class of 23 students from School Year 2019-2020 (August to December 2019), one class of 39 students from School Year 2020-2021 (August to October 2020), and one class of 39 students from School Year 2021-2022 (August to December 2021). All 101 students covered are management engineering students or business students majoring in operations research and with a quantitative focus. Students' feedback were collected via consultation sessions and feedback forms at the end of the course.

Han's adaptation of the spiral curriculum can be seen in how *Monopoly* was used as a means for students to learn the basic principles of financial statement analysis and financial forecasting before proceeding to higher-order applications (in the case of this course, the capstone project). On the other hand, Landers's propositions on gamified learning can be seen in how *Monopoly* gameplay and *Monopoly*-related assessments serve a moderation role in improving motivation toward learning finance and encouraging engagement in more advanced finance topics.

### Applying the Spiral Curriculum

Han's adaptation of the spiral curriculum can be seen in how the students were able to proceed to higher-order applications in the course following the *Monopoly* assessments. These higher-order applications include (i) capital budgeting; (ii) financial forecasting for a publicly-listed company; and (iii) valuation of a publicly-listed company—all of which require a fundamental understanding of financial statements and financial forecasts.

The application of the spiral curriculum is straightforward: the *Monopoly* assessments provide a means for the students to learn basic principles before proceeding to more advanced topics. As mentioned, the topics of capital budgeting, fixed-income, and equities all require a prior understanding of financial statement analysis and financial forecasting.

<b>Financial Statement Analysis</b>	<b>Financial Forecasts</b>	<b>Time Value of Money</b>	<b>Capital Budgeting</b>	<b>Fixed-Income</b>	<b>Equities</b>
<b>Financial statements</b>	<b>Financial statements</b>	<b>Financial statements</b>	<b>Financial statements</b>	<b>Financial statements</b>	<b>Financial statements</b>
<b>Ratio analysis</b>	<b>Ratio analysis</b>	<b>Ratio analysis</b>	<b>Ratio analysis</b>	<b>Ratio analysis</b>	<b>Ratio analysis</b>
	<b>Modelling / forecasting</b>	<b>Modelling / forecasting</b>	<b>Modelling / forecasting</b>	<b>Modelling / forecasting</b>	<b>Modelling / forecasting</b>
	Macroeconomics	Macroeconomics	Macroeconomics	Macroeconomics	Macroeconomics
	Industry analysis				
	Company strategy				
		Discounted cash flows	Discounted cash flows	Discounted cash flows	Discounted cash flows
			Capital budgeting metrics	Markets	Markets
				Interest rates	Relative valuation

Figure 10: Illustrating the Spiral Curriculum Throughout Course Topics

Qualitative feedback from students point to the *Monopoly* assessments as a significant tool that helped ground lessons on financial statement analysis and financial forecasting and allowed them to proceed to higher-order topics in the course. Noteworthy feedback on the *Monopoly* assessments that enforce its role in the spiral curriculum include the following:

- “Helpful”
- “Course requirement allowed [us] to get a better sense [of the lesson].”
- “With the *Monopoly* activity, [I was able to] really grasp why [financial] ratios are lower or higher.”
- “Learning by doing”
- “With the *Monopoly* activity, I was able to do financial modelling.”
- “It was a good way to understand how the business works.”
- “Good practice”
- “*Monopoly* was a great way to tackle the very complex topic of financial modelling.”

## Applying Landers's Theory of Gamified Learning

As for the application of Landers's theory of gamified learning, two key observations must be made first to contextualize how students' attitudes when entering the finance course in discussion. First, students enter the course following the two prerequisite accounting subjects, with most students recounting unfavorable experiences while learning the accounting subject matter and therefore "scared" to engage finance topics. In an article from *Schoolbag: The Education News Site* (2019), Republic Polytechnic School of Management and Communication Senior Lecturer Ella Siu acknowledges that "people find accounting difficult" and that "even adults are intimidated by the subject." Second, most students enter the course with an impression that finance centers heavily on numbers and budgeting, implying that the subject matter is mechanical and not interesting. The researcher believes that these two considerations are roadblocks to achieving learning in the finance course.

With the use of *Monopoly*, students are intentionally placed in an environment that challenges their preconceived notions of finance. Such an environment involves gameplay with peers within students' respective learning teams, which the researcher views as a foil to the otherwise intimidating and mechanical initial impressions. The gameplay environment is intended to be enjoyable—this is consistent with the views of Bisson & Luckner (1996), who argue that board games "seem fun to play with, thus making an impact to the environment of the player to aid in learning" and Tasnim (2012), who believes that a board game can "become a valuable tool for fun and experiential learning."

The aforementioned are consistent with students' inputs on the *Monopoly* assessments:

- "Fun doing the game with the group"
- "Therapeutic"
- "Stress reliever"
- "Felt like a break, playing and having fun"
- "Fun assessment"
- "Childhood game applied to real life"

In majority of students' end-course feedback forms, students remark that they exit the finance course with a view on finance highly different from their initial impressions, most of which associated finance mainly with numbers and budgeting and conceived the subject as boring. Among the common realizations cited by students when they exit the course are (i) how narrative is important in the discipline of finance and (ii) how finance goes beyond numbers and budgeting. The researcher believes that the course instruction, with the aid of the *Monopoly* activities as moderating tools, helped drive these realizations. For example, the part of the gamified assessment was making a short write-up about key trends observed in the generated financial statements—this may have helped induce an attitude that placed importance on narratives in finance.

In summary, the *Monopoly* assessments in the finance course serve as a moderating tool meant to influence two attitudes: (i) students' apprehensions to learning finance due to unfavorable experiences learning accounting and (ii) students' preconceived notions of finance (i.e. mainly about numbers and budgeting). In influencing the two attitudes, students were observed to engage with other topics in the finance course with improved motivation and engagement. This is consistent with Landers' propositions in his theory of gamified learning, wherein he posits that gamification influences behaviors and attitudes, which in turn, moderate instructional effectiveness.

## The Long View

On a more personal note, the researcher would like to note that several students who are part of the sample proceeded to engage in higher-order applications of finance via student competitions, internships, and job opportunities in the fields of investment banking, equity research, corporate finance, asset management, and management consulting among others. Qualitative feedback from students indicate that the finance course in discussion shifted several students' views on finance and made them consider future careers and opportunities in the field after previous apprehensions.

Bearing in mind the role the *Monopoly* activities played in the finance course, the researcher believes that the students' proceeding to these higher-order applications, beyond the extent of the course, are illustrative and supportive of both the spiral curriculum and Landers's theory of gamified learning.

## Conclusion

Gamification as applied in undergraduate business education is relatively new, with limited existing literature. Existing literature on broader gamification in learning and education suggest multiple benefits, including improved motivation and engagement among learners. Gamification is used in an undergraduate finance course for business students in a private business school via the *Monopoly* board game. Students are tasked to generate financial statements, explain key trends in the financials, and develop financial forecasts based on *Monopoly* gameplay. This application of gamification is evaluated using Han's (2015) adaptation of the spiral curriculum and Landers's (2015) theory of gamified learning. Based on a qualitative explanatory methodology, the researcher concludes that (i) the *Monopoly* activities fit the spiral curriculum as a means to master basic principles before proceeding to higher-order applications and (ii) the *Monopoly* simulation influences key attitudes, namely fear due to accounting and preconceived notions on finance, which in turn drive better learning. Student feedback collected via consultation sessions and end-course feedback forms are supportive of the conclusions.

For future studies revolving around this topic, the researcher has four major recommendations. First, future studies may arrive at stronger conclusions with the use of feedback forms at the beginning and at the end of the course to formally test Landers's proposition of a change in attitude or behavior. The current research relied heavily on qualitative feedback from end-course feedback forms and consultation sessions to arrive at its conclusions. Second, the researcher recommends the use of a control group; one batch of students with the gamified *Monopoly* activities and another batch of students without the gamified activities. Landers (2015) had a similar recommendation and believes that "rigorous experimental and correlational tests of these paths and processes in differing gamification efforts and across contexts are needed next to establish a practical, comprehensive, and scientific understanding of gamification." Third, the researcher also recommends the use of quantitative methods for future studies, such as descriptive statistics and predictive statistics (e.g. ANOVA, regression), as opposed to the current study's purely qualitative approach. The last recommendation is to check for various exogenous factors that may affect the study, such as ensuring that the students in the sample had homogeneous accounting instruction or expanding the study to include students from other universities and degree programs.

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***When It Absolutely, Positively Has to Be Learning Online: Emic Reflections of Teacher - Student Resilience within an Australian Tertiary Pathways Landscape***

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The Asian Conference on Education 2021  
Official Conference Proceedings

**Abstract**

COVID-19 signalled an end to the free movement of international students to Australian tertiary institutions necessitating a paradigm shift away from conventional face to face teaching and the benefits of cultural and linguistic immersion for online learning. This paper draws on auto-ethnography to explore and evaluate the impact of this transformation upon the affective and teaching and learning domains of a teaching staff member and student at an Australian university college. By virtue of the global and multi-sited field, the discussants have assumed an emic perspective and positioned the research orientation across a hybrid of confessional and impressionist writing to enable an authentic personal style inclusive of emotive responses, the contingent, and unforeseen in concert with making visible the cultural locus, the researcher's insights, and ways of knowing their cultures. The purpose of the study is to inform audiences what happened in the field, share their respective teacher-student experiences and to identify events and discoveries that were interesting and worthy of further research in areas of new forms of resilience encountered and expected within the field of international student online environments.

Keywords: Online Education, International Students, Resilience

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## Introduction

This paper could be considered somewhat idiosyncratic as autoethnography in the sense that the paper has two authors. This implies an overt contradiction to the approach of research and writing that grounds research upon a combination of self-focussed autobiography and ethnography that is context specific and situated in the analysis of existential personal experience in order to understand cultural experience. However, it is not a journey without maps. The approach of melding narrative ethnography and personal narratives in multiple authorships has been aptly demonstrated; one of the more erudite examples is Averett & Soper (2011) which *inter alia*, purged the researchers' burdens, questioned canonical stories, encouraged agency and promulgated cultural change in negotiating the culture of fear and specificity of its meaning for women.

The paper emanates from specific social science assessment events undertaken for a subject by a student, mediated by her lecturer, during a thirteen-week university trimester for a tertiary pathways program at a Sydney university. Although the project was conceived, experienced, and documented retroactively as individuals, the animation of interest and ongoing dialogue inherent to the faculty-student relationship led to the co-creation and development of the following collaborative paper based on the logic of discovery and *curiositas*. The intent was to enable an audience and ourselves to discover, learn about and understand within our affective domains the shared experience of how we responded to the technical-rational cultural challenges of moving from face-to-face teaching to online teaching within the context of understanding the nature of resilience. The collaborative co-constructed account incorporated the narrative stories of a lecturer and a student and the encounters between them. We would like to position the paper within the post-experimental inquiry paradigm of autoethnography with its inherent focus on autobiographical, confessional, and co-constructed representations. The aim for using autoethnography as methodology was to enable an understanding - for cultural members and strangers alike - of the lived experiences of the effects of online teaching upon teaching staff and their students. The intent is to explore the teacher-student relationship and to draw the writers and audience into the inner workings of the social context of their intersecting layered journeys as products of their culture of resilience as international students and their lecturers negotiated the collaborative and individual challenges associated with online teaching.

The 21<sup>st</sup> century has seen an academic revolution take place in higher education marked by transformations unprecedented in scope and diversity. An identified issue within contemporary global higher education is the high rates of international student mobility. More students move to more universities around the world today than ever before in human history. In the Australian context, previous Australian involvement with international students based on the Colombo Plan had been on an aid basis. Launched in 1951 it is regularly invoked in Australia as a pioneering project through which closer understanding and engagement with Asia was achieved and remembered mostly for the Asian students sponsored in Australian degree programs. (Lowe, 2011) By 1985, for example, 20,000 international students had been sponsored by the Australian government. However, from 1986, influenced by new right economic rationalist thinking in which market forces prevailed, a rethinking of Australia's overseas aid programs, and the economic reforms leading to Australia's closer integration with the world economy led to the introduction of full fees for overseas students in Australian tertiary institutions. In the 1990s, cuts and lack of indexation impacted further on tertiary budgets, so the story of international students changed from humanitarian engagement to one seen through financial lenses, from aid to trade.

**Robert:** I remember the moment when COVID-19 changed our face-to-face model of teaching. On my first teaching day in the first trimester of 2020 there were staffroom rumours that we would be moving to online teaching. By 3 pm these rumours were confirmed. I felt a mixture of relief and apprehension. Relief at not having to endure the daily 4-hour commute which had worn me down physically for a decade. And apprehension about online teaching and feelings of disquiet as we cleared our workspaces and lockers, packed our bags and decamped into an uncertain future. My apprehension was based on the awareness that the main source of difficulties for international students is often understood to be language difficulties and deficiencies in ‘academic skills’. Language difficulties are problematic for many international students initially, and ‘mismatches’ in academic expectations and experiences are likely to be the source of on-going problems for students, as well as certain aspects of teaching and learning practices. Difficulties with language are also likely to arise as a result of the types of language used by lecturers including the use of unfamiliar concepts, acronyms and anecdotes, especially in some discipline areas where certain types of prior knowledge are assumed. The Australian Commonwealth government acted swiftly to close national borders so that international students could not enter Australia. Australians endured arguably the harshest lockdown restrictions on freedom of movement and assembly of any nation in their daily lives. There were also international students in Australia who were in an interstitial position as they were unable to return to their home nation and subject to isolating draconian lockdown restrictions.

Although we easily crossed the technical Rubicon of modifying and incorporating our teaching subject materials into a CANVAS CMS, and teaching staff adapted quickly to this new domain, it quickly became obvious that the university teaching and learning model based on a blended learning approach and method and practice of andragogy was severely tested. I often felt inadequate as a teacher. I felt enormous guilt that the experience of students during their formative years would be dominated by an online learning environment. The students were missing out on the immersive and social experiences of being on campus and enduring a greater burden placed on their cognitive load because of time-zone differences especially for morning classes.

I also felt ill-equipped and unprepared to deal with some students many of whom were experiencing the stigmatization of a global media fixated on determining the origins of COVID-19. A large population of our international cohort were Chinese. This use of global media networks as an institutionalised agent of fear and its effect on my inner self talk and interaction with students was not made easier by the highly visible role taken by the Australian Prime Minister Morrison and his cabinet who continued to call for an investigation into the origins of coronavirus adding Australia’s voice to a global chorus critical of how the Chinese government and the World Health Organisation had handled the outbreak openly referred to by the former American President Trump as the “Wuhan Virus”. For Chinese students, being assailed with this unremitting strident campaign and focus on China was the daily elephant in the room. It opened a Pandora’s Box and fuelled a further discourse in legacy and social media outlets on multiple issues that had been simmering in the Australian Press for years about perceptions of the negative influence of international students upon academic standards and freedoms, (Hamilton, 2018) access of Australian domestic student places to degrees and how universities should negotiate the grey zone warfare of dealing with matters of nomenclature in teaching materials; the geo-political imbroglio of Taiwan is a case in point. Over a period of months, the international political fallout escalated, and bi-lateral sensitivities were heightened resulting in what appeared to be punitive tit for tat trade sanctions added to the elephant in the room as the diplomatic and trade relationship between Australia and China reached its nadir. It was *annus horribilis* as the horror of the growing mortality and morbidity reported in the daily

news-cycle compounded the burden of our Chinese students affected by other existential events within their lifeworlds.

I felt guilt for my colleagues. In Australia, which shared 12% of the global cohort of international students at that time, international students represented a significant percent of the university student population. International education was the 3<sup>rd</sup> largest export earner valued at AUD \$33 billion dollars per annum. Prior to COVID, there were a total of 956,773 international students in Australia enrolled across five education sectors of which 442,219 were higher education students. (Jackson, 2019) Literally tens of thousands of teaching positions and ancillary jobs were underwritten by this influx. When the borders closed, a vital artery to funding was severed. In late March, the Federal government announced JobKeeper, an AUD \$89 billion dollar-wage program of wage subsidies for 3.8 million Australian employees to limit the economic damage. Employers were eligible for the fortnightly payment to staff if the business' revenue had fallen over a specified period by 30-50% depending on size. However, the conditions imposed by Federal government made it impossible for universities to avail themselves of this aid. JobKeeper was excluded to all but four Australian private universities and one Sydney based campus of NYU. Help was provided to public universities in guaranteeing funding for domestic students already budgeted for, but it did not include the gap in revenue lost due to international student losses. The effect was predictable and swift. I watched as all-faculty emails diminished and each teaching session allocation became a "Don't ask, don't tell" exercise as I was re-employed and others not. Communication became awkward and sometimes non-existent with colleagues who did not survive the cull. As a 60-year-old nearing the end of his teaching career, my greatest angst was for my colleagues with young families and mortgages to service due to my relatively established financial position in contradistinction to younger colleagues whose working and family lives suffered financial detriment and psychological distress.

At an organisational and personal level, the university provided first-rate support to teaching staff via a combination of technical rational support with IT augmented by ongoing formal and informal teaching staff meetings to monitor our cerebral hygiene and mental health. There was also an Employee Assistance Program for teachers and others struggling with their new situation and diminished circumstances. What was noticeable however, was that while teaching and ancillary staff were well-supported, the same could not be said for their students. Students also had institutionally provided recourse to counselling, other support services, and deferred fees on a case-by-case basis. However, in contradistinction to the media-fuelled stereotypes of international students coming from wealthy backgrounds or belonging to the uber rich club of the 1%ers, many international students do not come from wealthy families. Many students worked part-time jobs especially in the service sector industries hardest hit by lockdowns. As arts, entertainment and hospitality businesses closed, students found themselves joining unemployed Australians. However, unemployed Australian nationals received welfare support. Our students did not. They experienced financial duress as parental funding was inconsistent and their casual jobs disappeared. Although the Council of International Students Australia sought financial relief for international students' universities were simply unable to provide it. The lack of government support for international students was taken up by mainstream media outlets as Australian and global audiences witnessed the pathos of students relying on the goodwill of restaurants, individual benefactors, and charity groups as they lined up for free meals and other essentials of life. I found myself scanning student faces on Zoom and the evening news and current affairs programs wondering if any of our students were among their ranks aghast at my government abandoning universities and being prepared to accept the fate of international students as collateral damage.

Despite the exceptional ongoing professional organisational and personal support colleagues provided, I also experienced the shared loneliness and guilt of my colleagues that we were dealing with a “wicked problem” as described by Ramaley (2014). These problems permeate our lives at local community and global level in response to unprecedented challenges with social complexities harder to manage than the technical obstacles. Problems cannot always be defined, continue to change and there was never any clear-cut response. I felt that I was not performing well as an instructor and unable to draw upon my full range and repertoire of teaching approaches and techniques to enable the blended learning experience inimical to the program subject. Most online teaching sessions were preceded by the dread of having to look at scores of black rectangles in Zoom and the ordeal of attempting to establish a rapport with empty spaces with names on them. As the months went by and with lockdown restrictions maintained, despite the unstinting institutional support of the university to keep us personally connected the distance between colleagues became more pronounced and with only several exceptions, personal relationships foundered. I also regressed back to the loneliness and anxiety of my early years as an academic at this university. The transformation in public sector provision from a Keynesian Welfare State to Schumpeterian Workfare State extends further than the technical-rational and instrumentalities of new mechanisms of resource allocation. For the last two decades, as federal funding has stagnated, universities have relied on international student fees on the revenue side, and casual workers on the expense side. University administrations have invested heavily into the international student market as the sole source of revenue growth while simultaneously increasing precarious employment as risk mitigation and cost minimisation strategies.

The tenure held in previous positions at other universities during the 1980s and 1990s had all but disappeared by the early 2000s. Universities had casualized work, introduced and shifted labor-intensive and time-consuming administrivia to academic workloads, and the composition of faculties changed so that they were clotted with an increasing number of administrative workers with permanent full-time or part-time employment status while the academic side languished. The uneasy dynamic of insecure work and power imbalance between teaching staff and their managers opened the path to exploitation. In some universities continuity of employment in sessional or contract positions became contingent on the expectation that teaching staff would do underpaid or unpaid work as was recently confirmed recently in successful class action proceedings in the Federal Court by the National Tertiary Education Union. At least 10 Australian higher education providers were found *inter alia* to have engaged in widespread systematic wage theft by engaging its lecturers as independent contractors in order to avoid their obligations under the *Fair Work Act 2009*, and re-classifying tutorials as 'practicals', or 'laboratories' in order to avoid paying casual academics at the tutorial rate and have been ordered to pay back tens of millions. Others are under investigation. It's against this backdrop that my loneliness of a decade of teaching in sessional positions was brought into sharp relief now that we really were challenged by forces completely outside of our control.

**Aye:** I am a 21-year-old who has faced two military conflicts in Myanmar: the 2007 Saffron Revolution and 2021 coup. My parents, who are in their forties have experienced three military conflicts in their lifetime if I add the 1988 uprising. My grandparents in their seventies have lived through four military conflicts, if I include the 1962 Ne Win era. The repeated pattern of protests, conflicts, civil wars, and loss of life in Myanmar has been an omnipresent feature of life across two centuries for my people. However, the 2021 coup came as a shock to many civilians, as we believed in the power of human rights and democracy in the 21<sup>st</sup> century.

On 1<sup>st</sup> February 2021, our basic human rights were robbed from us. I could no longer contact my family members as the internet was cut off, and Myanmar passed into darkness. People took to the streets to protest, with the hope to win our democratic nation back, but many of them were shot and the rule of law disappeared. My parents had to go into a hiding as our home location was no longer safe. They could hear the gunshots, explosion of bombs, and the cries of innocent civilians. Armed soldiers patrolled the streets and killed any civilians that disobeyed their orders. They checked civilians' phones, they tracked the IP addresses of the people who posted about them on social media, and innocent children were murdered daily on the streets.

I was in my second semester of Life Sciences in Australia. Every day, I witnessed video footage of people getting shot, pictures of bodies and the misery of families who were mourning for the deaths of family members and friends. Perversely, I was safe in a peaceful country and had the chance to continue my education. I detested myself for being in a safe place, while people in my country feared for their lives. I detested myself for having a chance to continue my education, while students, as young as seven years old were killed in their homes; collateral as bullets passed through house windows.

According to Tilghman-Osborne (2010), guilt is an emotion that is hard to define, but it is mostly associated with clinical depression, obsessive compulsive disorder, anxiety, somatization, and psychosis. During this period, I noticed a deliberating sense of guilt that I was experiencing for not doing enough to help people in Myanmar and for being safe, while the others were undergoing psychological and physical pain fleeing their homes, and witnessing their loved ones being killed mercilessly. I was privileged to be studying abroad and being away, but this did not make me feel better. The paradox of privilege left me with an insuperable guilt burden for being away from Myanmar, while the others were suffering, and being aware of this, adversely affected my mental health. I would sleep for days without having any desire to eat, sleep or interact with people. If my family members did not pick up my phone calls, I would descend into dark thoughts about their fate. I was paranoid. I was guilty. I was helpless.

As an international student during the pandemic, I received very little support emotionally, and financially in a foreign nation. During this crisis, Myanmar's economy was predicted to contract by 10 per cent, and an estimated (and under-represented number) 600,000 people lost their jobs (Kurian, 2021). My father received half of his salary, while the living costs including medicine and food rose exponentially. The bank systems were destabilized, and cash flow was stopped abruptly. It took days to queue up at an ATM to withdraw cash. While my parents were struggling to meet the necessities, I struggled in Australia with very little cash in hand, and nowhere to ask for support.

Two weeks after the coup, I remember calling my college to request the deferral of my tuition fees as my parents could not transfer any money to me since the bank system had ceased to function. I was greeted with a cold voice that said "I'm sorry, there's nothing we can do to help. If you do not pay on time, your visa will be affected, and you will not be able to enrol into the classes". Unempathetic conversation was the last thing I needed to hear.

Being helplessly stranded in a foreign land, I had no close relatives to ask for help. My mental health deteriorated further as I was on the verge of being deported back to Myanmar, while my parents on the other hand, were constantly telling me not to come back. I did not know what to do, so I contacted the head of administration to explain the situation and was fortunate to

receive a fee exemption. I was able to breathe a little. However, at the time of writing, my parents are still struggling to transfer money to me due to the inflation of money and volatile banking system.

During this period, Myanmar students received very limited mental health support. One phone call was made by the college as a welfare check on my mental health. There was no second call. We were not made aware of counselling sessions or consultations. Since I was in a safe place, I worked as a Peer Mentor for Myanmar students studying in Australian Universities, to ventilate their concerns and help with the difficulties they faced like access to internet and utilities such as electricity. I was an advocate to express their concerns to professors, lecturers, and tutors. Since I was also experiencing psychological distress and material shortages, I doubt that I was able to give full support to my peers. I believed that the college support system could have assisted further both financially and mentally but only later realised that the universities themselves were in no position to provide for us as they'd been abandoned by the Australian Federal government.

Even though I was advised to socialise with friends, I found it much harder to make friends with online learning. We were forced to interact with each other in breakout rooms but all I could see mostly was blank rectangular screens. It was hard to make a conversation. No one responded to me whenever I started the conversation. After two hours of class, I found myself curled up in bed disillusioned and dispirited because I was tired of being alone in a tiny room for the entire day. I wanted to talk to people or socialise, but I did not have a chance. There was no one to hear my voice, and I had nothing to look forward to each day.

This left me with one choice, to study and work hard so that I could distract myself from the trauma of Myanmar and my own feelings of helplessness. I studied for up to 12-14 hours each day and it eventually burnt me out. I also took extra shifts at work, where work was possible at all, to surround myself with people, but I was still lonely. It was a different kind of loneliness. I felt that no one could relate to me even though I was in a sea of people. They talked about their stress with school assignments, while no one understood me when I talked about my country in terms of flying bullets.

After looking through the testimony of my co-author, I realised that extent to which online teaching had adverse impacts upon instructors. The lack of interaction with students would have been extremely stressful, as many are not willing to switch on cameras and participate in class when it is 4 am in the morning in their country, or when they are unable to communicate in English fluently. Among the common themes of guilt, lack of support, and loneliness that we shared, I found that my educators also encountered *alienation* and *anomie*, just like the students and the uncertainty associated with the unanswerable question of when we would be going back to the campus. This opened my eyes to another realm and the existential difficulties unknown to me that my co-author and lecturer faced as an educator, during this shared critical period.

Within seven months of the coup, I decided to start a forum - when a connection could be made - and set up consultations with people in my country to hear their voices and about their experiences so that I might play a small part in making a difference. I wanted to hear what they had to say. After conversations with twenty-two people, I heard various anecdotes; from parents worrying for their children's future to students being scammed for wanting to come abroad to study. It was interesting to find that my depression came from being separated with my family during this difficult time, while their depression came from being enmeshed too

closely with their family members. Since early 2020, people in Myanmar have been in lockdown and it has been almost two years since they last went to school or regular work. Being in proximity with their family members every day for two years with little respite for personal space exacerbated their distress as there was simply no privacy.

I also encountered many young, lost souls entering the formative years of their adulthood, who had to leave school to enter the workforce often for unskilled work. Government schools were closed, and they could not afford to attend international schools. This was when I realised the vicissitudes associated with the emergence of a new structural inequality and education gap between the privileged and under-privileged. Poor people were likely to move from relative to absolute poverty as they simply had no access to quality education, while the upper middle-class and elite were inured to the situation and increased their wealth with the effect that their children had unfettered access to a quality international education while others languished in an education vacuum. They witnessed education scams. Some ‘educators’ took advantage of this period and turned the situation into a business opportunity. Many education centres were created seemingly overnight. They guaranteed entry into the medical stream in prestigious Universities, *without* preliminary exams. They mislead parents by claiming their tertiary enabling programs would receive equivalence to the IGCSE O Levels (UK 10<sup>th</sup> Grade). This played on the parents’ desperate desire to remove their children from the chaos and educational stasis around them and enable their children to live in a foreign country with Human Rights and the rule of law. These businesses bloomed overnight and prospered by giving false hopes and information to the students and parents.

## Conclusion

My reading of our combined vignettes, strategies for coping and concluding comments revealed that although our relationship changed over time, I really knew little about student lives and their feelings. I was aware of the student’s working experiences and conditions of course. However, much of that information was mediated via the filters of Chomsky’s Mohawk Valley directed towards controlling thoughts, opinions and attitudes. Establishing trust helped to lead to knowledge production and the realisation that I needed to become more aware of student needs and of my own lack of knowledge. I also developed a critical awareness of how our shared existential crises shifted my thinking on regaining confidence with my approaches and teaching repertoire and compensate with changing my assumptions and expectations on what worked and what did not in an online environment. I was also enabled to make the transformation away from a long-held fear and anxiety of never knowing if I would be re-employed and of feeling like flotsam jetsam in precarious work to acceptance of that situation. Further, despite having contributed to the university’s corporate culture over the years with publication and service to the community, although frequently approached to contribute to professional development I had always harboured reservations about being actively involved in these activities. During the period mentioned in the presentation, the awareness of teacher feelings of growing marginalisation and isolation presented an opportunity to counter what was arguably an aversion to this aspect of my teaching practice. I worked with the Head of Teaching and Learning and was a panel discussant on the theme of “How to encourage an engaging learning environment” for an all-day Professional Development session. The all-staff discussion was very well received and generated continued valuable dialogues for long afterwards about the impact of our own histories and challenges, their understanding and effect upon our students, and include and recognise the utility of an honest examination of our own anxieties and perceptions of inadequacy as an essential strategy of develop strategies to

transform future practices and interactions into more comfortable and productive experiences for instructor and student alike.

Our paper documents an initiative that began at the University of Technology College Sydney within a social science subject taught as part of a Tertiary Pathways course. We have shared and promoted research which documented experiences and liminal moments of learning from the affective domain of teachers and students as processes of resilience which locate our anecdotes within a broader framework in response to the context of the wicked problems encountered during this time. The contextual shared experiences cannot possibly sit within the ambit of all academics and their students. We make no claims to universalise knowledge and experience. However, we believe that we have moved beyond introspective indulgence and although our epiphanies are self-claimed phenomena which one person may consider an experience transformative or restorative while others may not, our moments lay bare how we negotiated our intense existential situations and their sequelae after the incident has passed. We submit that reliability and validity turn on the credibility and verisimilitude of the stories recognising that when applied to autoethnography, the context, meaning and utility of terms such as reliability, validity and generalisation are altered. What we intended was to universalise at least individual experience being recognised as distinct to the individual as we are all different and acknowledge the notion that we share outsider status in different ways of what it feels like to operate outside the norm. For all of us, the power of nostalgia for face-to-face teaching was futile. That stage was empty with the actors gone. All around us the intellectual lightships of academy had broken free of their moorings. The future generation will never know what it was to find the lights drifting, the compasses awry, and very little to steer by.

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## ***Course Design for Tunnel Engineering with Complexity under Consideration***

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### **Abstract**

In the recent years, Chinese infrastructure and civil buildings are of increasing features in type, quantity and dimension. The high education of Civil Engineering and related subjects has been prosperous for more than two decades in China. However, similar challenging situation, with which the education of Civil Engineering in industrialized countries was faced at the beginning of this century, appears in China nowadays. To adapt to the changing and challenging situation, such as with course time decreased, content and requirement increased, the teachers of professional courses in the field of Civil Engineering have to redesign course plan. This contribution presents the course design for Tunnel Engineering with complexity under consideration at Chang'an University in China. The complex features of the course Tunnel Engineering are first analyzed, with special reference to the course content and main principles related to the major teaching points. The complex features of the course mean the requirement of systems thinking in course learning and teaching process, which should be based on an effective course design. The application of systems thinking rules and complex adaptive systems principles in the course design is presented, with three-step systems mapping method as example, including (1) mapping the course content, (2) activating the learning content, and (3) checking (assessing) both the content and the underlying thinking skills articulated in the lesson frame. The practice and results of the course design for Tunnel Engineering indicate an active effect to foster student optimal learning and to promote student metacognition developing.

Keywords: Complexity, Systems Thinking, Mapping Method, Course Design, Tunnel Engineering

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## Introduction

Teaching at college is not only to present information to students involved, but to transfer specified information into student's knowledge. We are in an age of information and innovation knowledge driven society, which is with features of changing and challenging. The ability to cope with this situation requires developing the skill of learning how to learn (Watson, 2019). Thanks to the digitalization and internet technology, the acquisition of information is generally not difficult in learning and teaching process at a university and how to use information available reasonably and efficiently is the crux of the process. An arbitrary accumulation of information will not automatically become knowledge, which is structured information with systems thinking (Cabrera & Cabrera, 2015). Students need develop not only cognition but also metacognition in a systematic thinking way (Gell-Mann, 1995; Fleming, 2014). Therefore, a student learning-centered course design and its execution plan should be beneficial to the development of student's self-consciousness in the learning and teaching procedure.

In the recent years, infrastructure and civil buildings are of increasing features in type, quantity and dimension, such as the tunnel and underground structures in China. The information related to a subject or specialty is increasingly cumulating with time. This situation is challengeable to the teaching of a professional course at a university, as the teaching time for a tradition professional course is limited or even decreasing (Ma, 2021). To adapt to the situation, the efficiency of a course teaching and learning process should be increasingly improved to meet the requirement of a changing situation.

In modern education, complexity is considered a central theoretical concept and the application of complexity is relevant in education (Mason, 2008a, b; Cabrera & Cabrera, 2019). Considering a student's learning is a performance in a complex organizational processes, we educators need systems thinking models rooted in complexity theory (Kuhn, 2008), and as suggested by Cabrera & Cabrera (2019) that "those of us involved in education must understand complexity and in particular complex adaptive systems", to help students to develop adapting ability.

Following the three-step teaching method that involves framing, activating, and checking the knowledge a teacher wishes to impart to students (Cabrera & Cabrera, 2019), the course design for Tunnel Engineering at Chang'an University is presented, with complexity under consideration, to reinforce applying systems thinking in course practice.

## Features of the course Tunnel Engineering

Tunnel Engineering is relatively new in comparison to the other subjects, such as industrial and civil architecture, geotechnical engineering, in the field of civil engineering. However, Tunnel Engineering is increasingly assigned as an independent course at a university since 1970s, from which tunnel and underground structure are increasingly built for various usages. In the Tunnel Engineering course design, the following complex features are considered.

### 1. Complex features of the subject content

As a course, the information related to the following features of tunnel or underground structures should be presented in a proper way: (1) underground structures with various types and functions; (2) structures in various building conditions and environments; (3) structures

with limited and specified operational environments. In a tunnel project, these features are considered, such as in terms of requirement, building and operational conditions, cost and time schedule, and the risks related to the project. All of these parameters are presented in the content of planning, design, construction, operation and management stages, which are also corresponding to the execution stages of a new project (Ma, 2020). In practice, the upgrade and rehabilitation of an existing tunnel are always necessary with operational time increasing and the technical standards for tunnel operational environments are developing with time. The related information, theory, principles and engineering skills are learning and teaching content, such as in terms, definitions, concepts, analysis, calculation, and case histories so on.

The above-mentioned course content is not only rich in formation and meanings, but also complex. For example, in a general view, a tunnel project is executed in stages, which conditionally and non-linearly influence or relate to each other, in terms of project considerations, such as usages, building and operational conditions, cost and time schedule, and related risks. The project influence factors, such as related to the above-mentioned features, will interact in a dynamic mode in the project stages. In a specific view, a term is usually presented in much simple and limited way, such as in definition, while systemic and complex features is under consideration when it is used in the main parts the course. For example, the ground in a tunnel definition is considered building environment. The surrounding rocks which is the ground parts that have direct influence on the behavior (e.g., stability) of a mined tunnel, are the structure components of the tunnel in a general sense. The behavior of the surrounding rocks of a tunnel could be a complex system and should be presented with the interaction between the tunnel supporting system (i.e., structure in a narrow sense) and the surrounding rocks under consideration.

As the course time is limited, we could only present some the information related to the course subject. Considering the complex features of the subject contents, the course information sampling and teaching plan design need the help of systems thinking, with complexity under consideration.

## **2. Complex features of the subject major principles**

As the above-mentioned, the functions and types of tunnel and underground structures are increasingly diverse and meaningful. So are the major tunneling principles in terms of tunnel planning, design, construction, and operation and management. To present a tunneling principle, there need enough space for its complex features. For example, a mined tunnel is built in ground and the features of the tunnel are strongly related to the ground conditions. The following principles often come into play in project different stages, respectively.

(1) *Planning stage*: Ground conditions have strong influence on the project feasibility and risk level, tunnel type and construction proposals, and their corresponding cost and time schedule plan.

(2) *Design stage*: The grounds around a tunnel, i.e., surrounding rocks, are considered parts of the planned tunnel structures. The assessment of the properties of the surrounding rocks, such as stability or self-supporting capacity, is the foundation for the structure (or supporting system) design, construction plan proposing, risk evaluating and controlling planning, the evaluation of cost and time schedule.

(3) *Construction stage*: The ground conditions ahead of excavating face need identification in an advanced way, and the predicted behaviors of the surrounding rocks in design, especially for these with poor self-supporting capacity, need in time checking according to the specified tunneling procedure, such as with the help of instrumentation and monitoring.

It is noted that the behavior of the surrounding rocks is of dynamic features, which are related to various factors, including the geometrical features of the tunnel, ground conditions without and due to tunneling disturbance, control and protection measures (e.g., supporting system) to the disturbance and their applying time. For the tunnels, which are built in grounds being sensitive to tunneling disturbance and the applying effects of the supporting system, the behaviors of both the surrounding rocks and the supporting system are strongly related to their interactions, which are of non-linear and time-effect features. It is clear that the above-mentioned principles work in a complex system way. This is also the reason that a tunnel project is often of unique features.

Considering the above systemic and complex features of the Tunnel Engineering as a subject, we design the course learning and teaching with complexity under consideration. For example, the system relationships of the above-discussed course content and related major principles are presented in Figure 1.

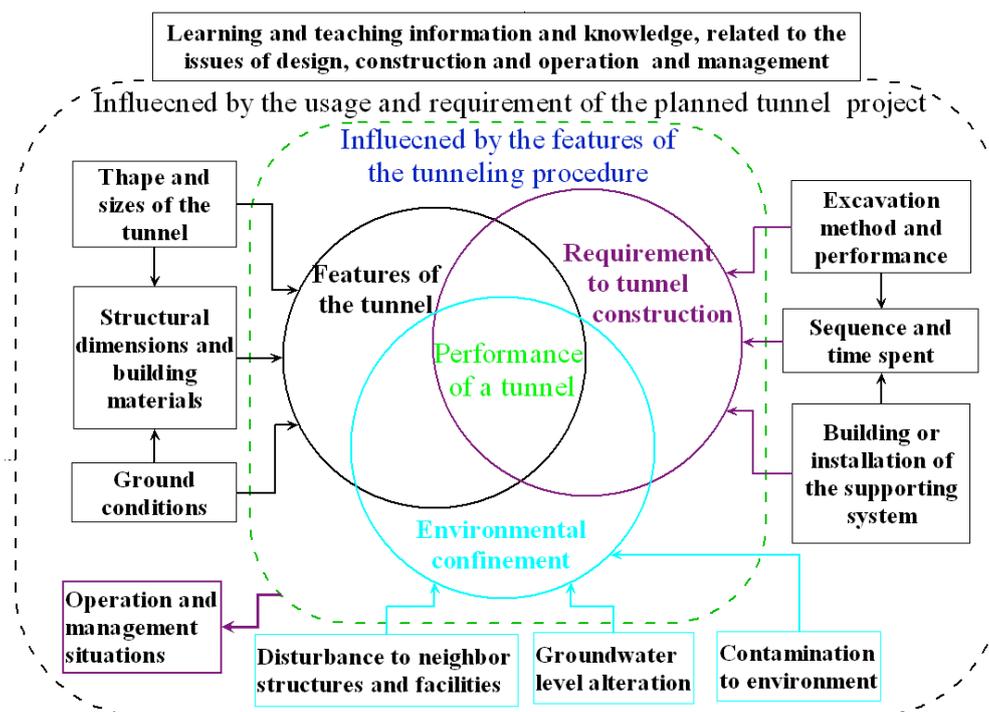


Figure 1: System relationships of Tunnel Engineering content and related major principles.

### Design for the course Tunnel Engineering

As Murray Gell-Mann (1995) stated that complexity “illuminates the chain of connections between the simple underlying laws that govern the behavior of ... the complex fabric that we see around us, exhibiting diversity, individuality and evolution”, and complex things are considered the product of simple rules (Cabrera & Cabrera, 2019) or complexity depends on simplicity (Gell-Mann, 1995). On the other hand, a learning and teaching at a university involves human systems and is of complex, nonlinear, multidimensional and interconnected features (Kuhn, 2008). And therefore, we should seek for complexity theory to provide us

insight into the nature of human collective behavior (Cabrera & Cabrera, 2019) in learning and teaching plan design and implementation, in favor to metacognition development.

## 1. Complex systems thinking and metacognition development

Education is a complex system process and requires applying complexity system thinking to meet the challenges in learning and teaching activities (Cabrera & Cabrera, 2019). It is beneficial being conscious of the interrelation of all aspects of the educational system to improve learning and teaching results. In the following, we explore how systems thinking can be used to help students and teachers build metacognitive learning strategies.

It is beneficial applying Complex Adaptive Systems (CAS) in education to develop student abstract thinking and to make the teaching easier and clearer (Cabrera & Cabrera, 2019). Good course design and implementation plan help students develop metacognition, which is considered one of the twenty-first century learning skills, such as creativity, emotional intelligence and critical thinking (NRC, 2012). It is on a right track to develop metacognition (Cabrera & Cabrera, 2019) with the application of CAS, following the four cognitive skills or rules (DSRP): (1) making distinctions, (2) recognizing systems, (3) relationships, and (4) perspectives (Cabrera & Cabrera, 2015).

(1) *Distinctions*: Determination of learning and teaching content and a way of active study. Individuals make distinctions when they identify any thing or idea (Cabrera & Cabrera, 2019). In a course design, teachers first determine learning and teaching content through the creation of a boundary that identifies specified content from what it is not. Be sure that a course plan proposer is in awareness of the perspectives implicit in boundary-making or content choosing. What should be underlined is how to guide student to make distinctions consciously in a well-designed learning and teaching procedure. As one's cognition is improved through objective content identification and the awareness of the perspectives implicit in boundary-making (Cabrera & Cabrera, 2019), it is important to make clear the specified perspectives for each point of the learning and teaching content as early as possible. Therefore, students would have a chance to actively and effectively make distinctions in their learning activities.

(2) *Systems*: How to present the planned content in terms of the relationship of details (parts) and whole content. An idea or learning point can be considered as parts of a whole in terms of the concept of reductionism and holism simultaneously, as systems is made up of the co-implying elements part and whole (Cabrera & Cabrera, 2019). This means we can present a specified content in details while considering the related parts in a whole, which is made up of even smaller parts, such as in forms of the concepts of a subject, the types and elements of structures. How to present the planned content is also perspective-oriented, since one's perspectives affects not only her (his) understanding of the system, but also how to demarcate a specified learning or teaching point in terms of systems.

(3) *Relationships*: Developing systems thinking and problem-solving skills through making relationships and connections between and among all information. Knowledge is structured information. Our minds need constantly making relationships and connections between and among all information we encounter and process (Cabrera & Cabrera, 2019), although the process could be performed subconsciously. For example, determining causality is well-used in problem-solving and unconsciously creating relationships usually in an oversimplified way. In a learning or problem-solving process, we need making relationships yet somewhat

obscured within a system. The guideline based on the above-mentioned learning content presentation design is helpful in making the relationships, in terms of systems thinking and problem-solving skills development. A good practice is that students are aware of the learning information relationships they develop, such as through underlining the causality, which reflects the complexity of a practical problem or knowledge point, in an active learning process.

(4) *Perspectives*: Skills of identifying perspectives and considering alternatives in understanding information and solving complex problems. Perspectives consists of two elements: point and view (Cabrera & Cabrera, 2015), i.e., “A point is the idea/thing that is looking or focusing, while a view is the idea/thing that is being looked at or focused upon”. As we perceive a point or view of the reality in systems thinking, we frame the related information. In other words, the issues we look at change as we change the way we look at the issues (Cabrera & Cabrera, 2019). So, students should be encouraged to see another way to do/read/interpret what the others have presented in learning and teaching procedure. The skills of being able to identify perspectives and then consider alternative ones are a great advantage for understanding and solving complex problems. Therefore, seeing from multiple perspectives is one of the practical ways of applying the perspective rule. When we identify distinction, system and relationship in systems thinking, the related perspectives are embedded in the identifying process (Cabrera & Cabrera, 2019).

In practice, the four simple cognitive rules of systems thinking (DSRP) are considered as the foundational cognition building blocks, which could come to play simultaneously or in varying order (Cabrera & Cabrera, 2019), as shown in Figure 2. For example, students can apply the rules to build knowledge by structuring the related information to explore new channels of thought not yet presented in course information. This is of great benefit for structuring information, problem-solving skill development and innovation (Cabrera & Cabrera, 2019).

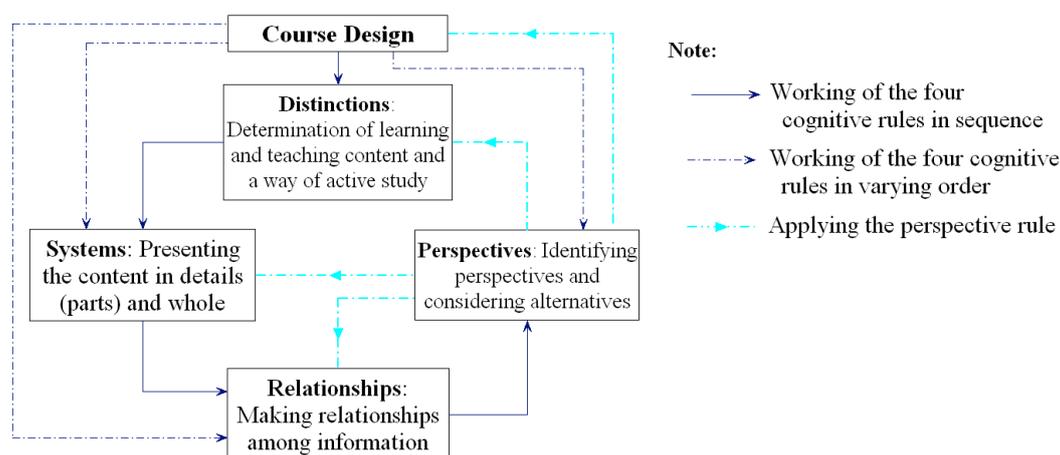


Figure 2: Application of the four cognitive rules in varying order in a course programme.

## 2. Application in Course Design

As information is available, it is critical to build meaning or develop thinking from the information. In other words, educators are not only teaching ideas (information), but also thinking skills to help learners to build knowledge through exploring deep meaning from that information. Course design and plan implementation should be learner-centered, such as to improve student learning outcomes. The tools and resources we integrate into educational

settings are to help student learning and structuring information or knowledge building. The DSRP cognitive architecture can enhance students' awareness of their metacognition, intelligence and effectiveness (Cabrera & Cabrera, 2019). As individuals are made aware of the way they think, they improve learning achievements (Fleming, 2014). To make learning and teaching effective, we follow the three-step systems mapping technique (Cabrera & Cabrera, 2019): (1) mapping knowledge (the content), (2) activating the knowledge (learning content), and (3) checking (assessing) both the content and the underlying thinking skills articulated in the lesson frame by learners, in the course Tunnel Engineering practice, such as to present idea, topic, principles and case histories, as shown in Figure 3.

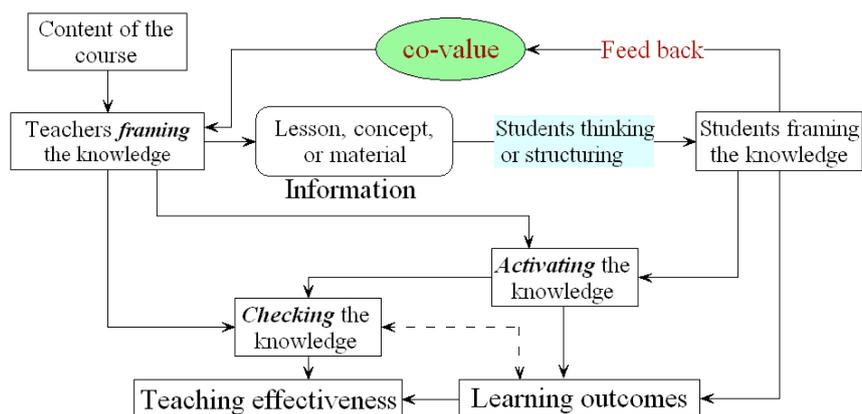


Figure 3: Application of the three-step mapping technique in the course programme

## 2.1 Mapping the course content

As teaching activity is student-centered, mapping knowledge means presenting the content to be learned and taught, in a transparent manner, such as in verbal, visual, physical, form, etc. Since knowledge is structured information, such as following cognitive rules, we consider that a learning and teaching procedure starts from knowledge framing to plan the course. The knowledge mapping should be functional to help a teacher and learner in organizing information according to cognitive rules, e.g., the DSRP rules. In other words, well-framed course design and implementation plan present related information, execution procedure and learning task with good objective clarity, to encourage students to actively learn through thinking rather than just memorizing information. An ideal way is to frame the related knowledge by a teacher and student co-creating mode (Ma, 2021).

In brief, the criteria for a good or effective knowledge mapping include: (a) making clear the course learning contents and objectives or rubrics; (b) presenting the execution procedure of the course activities, with specified key points for each of the phases or steps and the explicit clue of learning skills; (c) the content presentation of contemporary, concise, attractive, easily understanding features for each learning and teaching point, but of system features in a whole. For example, the course content related to the features of tunnel structures should be presented in terms of planning, design, construction, and operation and management, which will focus specified points a stage, respectively, but with the requirements from the others under consideration as a whole project.

## 2.2 Activating the knowledge

To increase student engagement and deepen understanding, the purpose of this step is to activate the content and thinking skills the teacher has framed, such as through a reflection on

the student learning experience. The planned activities, such as a scenario of problem-solving, storytelling, case history analyzing, or experiential activities, could connect the lesson content and the systems thinking skills as emphasized in the content mapping.

The effective activating knowledge is ground on students’ prior information and experience (Ferlazzo, 2015). Therefore, the first step is to know the previous knowledge of the related subject, such as through a quiz or content-specified problem-solving activity at beginning. The learning and teaching plan is tuned according to the activity results. This means a well-designed course syllabus and its implementation plan should be a modest rigidity with a structured flexibility, which improve and perfect itself via interactions within the learning and teaching system (Doll, 2008). The activating knowledge is an effective way to articulate connection and concretization of subject abstract concepts and to enable students to understand related learning content in systems thinking or build knowledge.

A well-designed activating is also a process of increasing student engagement and systems thinking application. For example, of the features of tunnel structures, activating points for the multi-stages learning and teaching content vary, but focus on the above-mentioned features of tunnel engineering, as shown in Figure 4.

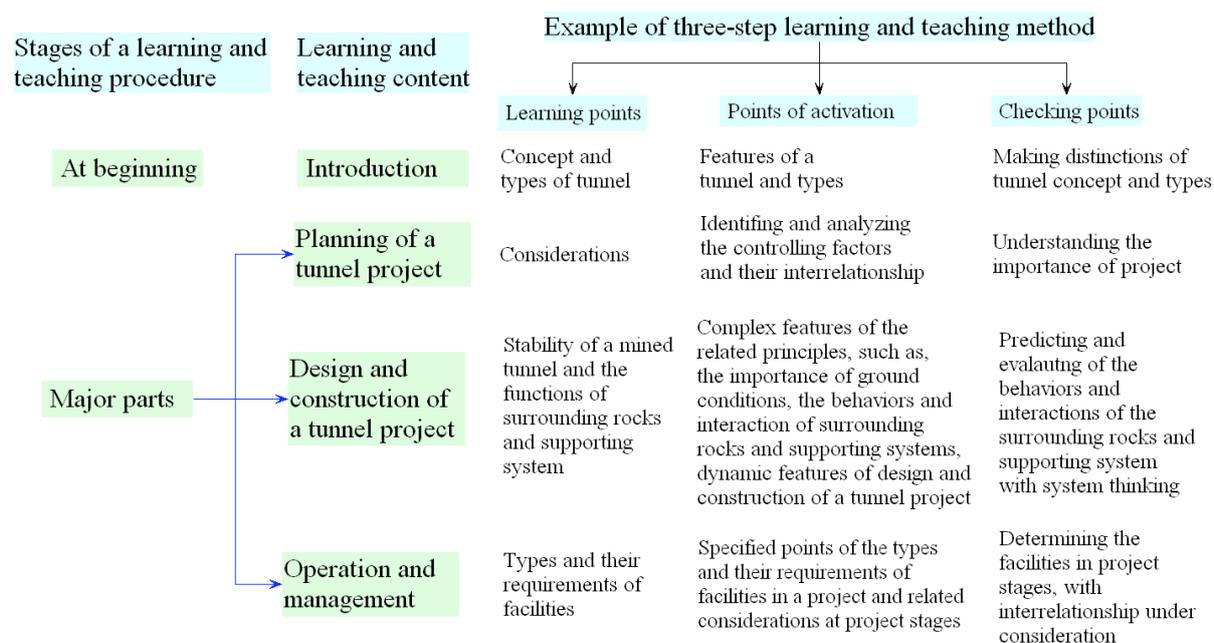


Figure 4: Example of the three-step systems mapping technique application.

For example, starting from a course introduction, the concept and types of tunnel are presented, with the question: what are the general features of a tunnel in the field of transportation? The response could be underground structure, engineering production, function (building purpose) and structure features (shape, size, ratio between length and span). At the end of this activation, students should be able to distinguish a tunnel in the field of transportation by identifying its three features from a tunnel in common sense, with explicit boundary distinctions from the concepts of ground structures, natural tunnels, and tunnel and underground structures with other usages, which are also corresponding to the types. Ultimately, students would also gain a clear understanding of both the distinguishing tunnel and ground structure, and the value of making clear distinctions in other course concepts.

Of the knowledge of tunnel planning, almost all of the related influence factors in Tunnel Engineering are under consideration, such as the requirements of a tunnel, features of the planned tunnel (e.g., type, geometry) building conditions (e.g., geotechnical, constructability, techniques availability, environment and neighbor structure sensitivity), social factors (e.g., cost affordability and time schedule acceptability, social and political influence), and related risks. The related activation focuses on the considerations in a system way, how to identify and analysis the controlling factors in a practical project, and the general features of the planned tunnel. The related learning point activation helps student to understand the importance of a good project planning and to develop skills of analyzing information available with the application of systems thinking.

The contents presenting the knowledge of tunnel design and construction are major parts of the course. Of the related knowledge, there are various points deserve activating. For example, the related activating knowledge practice will enable students to understand the importance of ground conditions to the stability of a tunnel, such as in terms of approximating the features of the tunnel surrounding rocks, the behaviors of the surrounding rocks and supporting system, as well as the interaction between the ground and supports. In this process, we underline the complex features of the related principles, including the structural functions of the surrounding rocks, how to protect or to mobilize the self-supporting capacity of the surrounding rocks with the features of stand-up time short or relatively long, respectively. The relationship between the design and construction are activated under a system consideration, such as in terms of dynamic design or “design as you go” during the construction of a complex tunnel project.

The knowledge activation of the operation and management content stresses both in the specified points of the types and their requirements of facilities, such as ventilation and lighting, and in the interrelationship of the planning, design, construction and operation issues in systems thinking. For example, the types and their requirements of operational and management facilities of a tunnel are mainly related to the features of the tunnel, such as type and function, geometry (e.g., length and span, shape and area of cross section), traffic volume and its composition. The requirements of the facilities should be increasingly considered from planning to design stages. The required facilities come into practice through construction, whose method optimization is often confined by the installation space features. The running of the operational and management facilities is issue related to project cost, serving and risk levels, and environment effect. All of these results could trace back to the project planning and design.

### **2.3 Checking the knowledge**

As the teaching is learning-centred, the learning outcomes need evaluating to ensure the desired course objective. The checking is to assess student understanding of information and thinking, with specified checking points (Fig. 4). The typical measure should have the parameters of determining whether learners are building the knowledge the teacher initially framed and then activated (Cabrera & Cabrera, 2019). The checking measures should match with the student experience, such as in terms of pre-lesson, within classroom activity and post-lesson. Therefore, it is important that students performing self-assessment and reflection to check their own understanding out of classroom and to increase their metacognitive awareness (Cabrera & Cabrera, 2019).

In a student-centred process, the evaluation of student learning outcomes is performed with the designed points and related rubrics (Fig. 4), which are of pre-lesson explicit form to the students. The evaluation practice shows that incentive is better than punishment (Ma, 2021), such as for the achievements of quiz, assignment, presentation and test both in classroom and after class. The checking results of the learning outcomes is active. This implies that the application of complex systems thinking in the course design, together with the three-step mapping method in learning and teaching process, is beneficial to foster student optimal learning and to promote metacognition, implying an improved learning outcomes.

On the other hand, the checking activity in time is also an effective approach to apply co-value method in course plan implementation (Ma, 2021) and to timely response to the appropriateness of teacher course framing (Fig. 3).

## **Conclusion**

With the application of Complex Adaptive Systems (CAS) and three-step mapping method (Cabrera & Cabrera 2019) in the course design for Tunnel Engineering, with complexity under consideration, the following conclusions can be drawn.

(1) Considering the complex features of both student knowledge building and the course Tunnel Engineering, the application of the three-step systems thinking mapping method is necessary and beneficial for the course design and plan implementation in favor to students' knowledge building.

(2) The practice and the results of the application of CAS and three-step mapping method indicate a positive effect to foster student optimal learning and to promote student metacognition developing.

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## ***Technology Adoption in Graduate Education: Basis for Faculty Development Plan***

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### **Abstract**

With the rapid growth of the technological environment and the current COVID-19 epidemic, the way we interact and conduct business has undergone significant changes. Graduate education institutions are not exempted from these changes, as administrators and faculty are under pressure to research and implement new learning approaches in order to ensure the continuation of service delivery. With this in mind, there is a need to build and strengthen faculty capacities in technology use. Given this, the study was undertaken to determine the technology adoption of the graduate school faculty of St. Paul University Quezon City utilizing its Learning Management Systems. By using the Technology Acceptance Model as its framework, the findings reveal that the perceived ease of use and usefulness of the University's online learning management systems are impacted by the series of training organized and conducted by the Graduate School department, as well as the necessity to adapt due to the current circumstance. Furthermore, findings suggest that professors' positive views about the utilization of learning management systems are important if the University's graduate education is to successfully transition from the traditional approach to online learning. This emphasizes that teachers are critical stakeholders in education, and their views about adopting online learning have a big effect on students' perspectives and motivation about online learning. Results of the study served as bases for the faculty development plan of the Graduate School Department.

Keywords: Technology Adoption, Learning Management Systems, Perceived Usefulness, Perceived Ease of Use, Intention to Continue, Attitude Toward Using

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## **Introduction**

With the rapid growth of the technological environment and the current COVID-19 epidemic, the way we interact and conduct business has undergone significant changes. Graduate education institutions are not exempted to these changes, as administrators and faculty are under pressure to research and implement new learning approaches in order to ensure the continuation of service delivery. With this in mind, there is a need to build and strengthen faculty capacities in technology use.

In order to address the gaps in faculty knowledge, skills, and competencies, faculty development plan in graduate education is regarded important in light of the rising demand for online learning, which is expected to be a part of the "new normal." This effort is being made to equip the faculty, assuring that they will be able to fulfill the future needs and requirements of the post COVID-19 teaching-learning environment. Graduate education administration, on the other hand, must strengthen their hardware and software infrastructures in order to rebuild their present learning environments. Graduate Education Institutions that are fast and adaptable to these changes have a better chance of survival and are more likely to prosper in the future education environment.

## **Related Literature**

The global impact of COVID-19 pandemic will unquestionably bring huge shifts in the education sector. Accompanying these anticipated shifts will be the changing role of the faculty. This role will undoubtedly evolve from being the sole source of knowledge in the confines of the four walls of classroom into a facilitator, a collaborator, and an enabler of learning utilizing plethora of online technologies. In view of this, universities need to make an investment in training their faculty.

The need for faculty capacity building and training cannot be underestimated due to the disruptive innovations brought by technology and due to the skills demanded by the business industry from the graduates.

Given these considerations, graduate faculty must learn new methods of teaching that are digital, technology-based, and utilize virtual space, unlearn processes that they have grown accustomed to and have become less effective, and relearn their roles (Zmuda, et.al, 2020) as teachers in educating Generation Alpha, the newest generation of students who are perfectly comfortable with virtual connections but do not necessarily perform well with physical human interactions.

## **Training Needs and Capacity Building**

The conduct of training needs analysis is undeniably a requisite in carrying out an effective and relevant training program. According to Guevara and Nuqui (2016), training and growth are essential in every organization that aspires to advance. They play crucial roles in the performance of a company and its personnel. These two are critical in faculty professional development, with the former focusing on teaching instructors particular skills to improve their performance and the latter encompasses a more expansive scope and focuses on faculty's future performance.

Literature indicates that training needs analysis in education has been neglected during the previous decade. According to Moeini (2008), for many years, teachers were supposed to figure out how to improve their teaching on their own, via trial and error, and by pursuing the appropriate professional development on their own. He further stated that given the changing environment of higher education, this form of trial and error training of professors is no longer acceptable.

### **Technology Acceptance and Adoption**

The COVID-19 health crisis has exposed vulnerabilities in the economic, social, technological aspects of the Philippine education system. With the dramatic surge in demand for online learning, most graduate education institutions were caught off guard and had to turn to online learning with faculty members struggling to learn the new technology. This current situation has depicted a glaring technology skills gap among faculty. The current situation which nobody imagined has forever changed the landscape of education characterized by new ways of learning, demanding new ways of teaching.

Information and technology literacy are among the skills demanded in the 21st century. For teachers, these constitute technology acceptance, integration and adoption. For the longest time, educational institutions have been staunchly resistant to altering their long-established and time-honored structure, methods, and practices. For decades, instructors have insisted on the traditional style of teaching, claiming that it is the only way to teach and learn, until the global crisis forced educational institutions to reconsider their approaches. Educational institutions are now realizing that they must make budget modifications that prioritize infrastructural and instructional issues/concerns. According to Ensign et al. (2007), as referenced by O'reilly (2016), the dilemma of giving instructors with access to technology but then having a poor adoption is well-known. This is supported by the findings of Arinto (2016) citing that "*there is a persistence of traditional modes of teaching and, in some cases, outright resistance to educational innovation*". Such resistance can be brought by faculty preparedness. Markauskaite and Goodyear (2009) discovered evidence that "there is a requirement for and difficulty in combining pedagogical frames and ICT tools with the other knowledge frames required to develop productive learning activities for teaching specific discipline knowledge. The research also identifies a shift from a teacher-focused technique to a learner-centered one as a barrier to successful technology integration. Teachers are finding it challenging to convert their traditional classroom environment to online learning in one way or another. Arinto (2016) expands on Daly and Pachler (2007), emphasizing that the use of online distant education/learning necessitates a shift in teachers' pedagogical attitude and techniques.

Given the foregoing discussions, this research was conducted to (1) determine the perceived usefulness and ease of use of the learning management of the University; (2) determine the attitude of graduate school faculty toward the utilization of the University's LMS; (3) determine the respondents' continuance intention; (4) find out the major obstacles that faculty consider in making effective use of technology in and outside the classroom; and (5) design a faculty development plan.

## Theoretical Framework

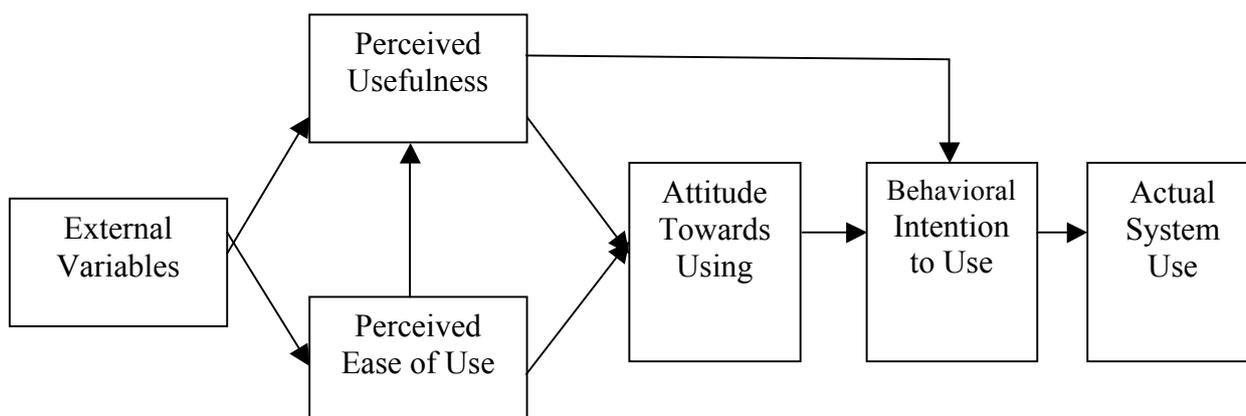


Figure 1. Technology Acceptance Model (TAM) by Davies, et.al (1989)

The Technology Acceptance Model was initially developed by Davis, et.al (1989) to provide an explanation of the determinants human computer usage behavior. This is practically an extension of the theory of reasoned behavior of Fishbein and Ajzen (1975). TAM considers that the person's individual intention to use the technology depends on how useful the technology is to the user and how easily it can be used in terms of functionality. Further, Davis (1989) as cited by Alenezi, et.al (2011) believed that the usefulness of the technology is directly proportional to the ease of use. Perceived usefulness is also seen as being directly impacted by perceived ease of use (Alenezi, et.al, 2011).

## Method

The quantitative technique was used in the study, adapting certain sections of O'reily (2016) survey instrument. It is a self-evaluation survey with numerical skill ratings. The following areas were evaluated for the purpose of this research: (1) perceived usefulness of the University's LMS; (2) perceived ease of use of the University's LMS; (3) respondents' behavior toward using; (4) respondents' continuance intention and (5) perceived obstacles/barriers to effectively adopting technology. The responders are the graduate school professors from St. Paul University City, school year 2020-2021.

## Findings

The purpose of this research was to gauge graduate school faculty opinions on the perceived usefulness, perceived ease of use, attitude toward utilizing, and intention to continue using the University's learning management systems. The study's conclusions will be one of the foundations for developing a faculty development plan.

Perceived Usefulness	x	sd
Using the OPEN LMS in my class helps me to control the pedagogy	3.67	0.50
Using MSTEAMS in my class helps me to control the pedagogy	3.44	0.53
Using the OPEN LMS in my class enhances my teaching performance	3.56	0.53
Using MSTEAMS in my class enhances my teaching performance	3.56	0.73
I find the use of OPEN LMS in my class useful	3.56	0.53
I find the use of MSTEAMS in my class useful	3.56	0.53

Using the OPEN LMS makes it easier to monitor the student's needs	3.22	0.83
Using the MSTEAMS makes it easier to monitor the student's needs	3.22	0.67
<b>Average weighted mean</b>	<b>3.47</b>	

Table 1: Perceived Usefulness of Learning Management Systems

The Technology Adoption Model of Davis (1989) is one of the most important models of technology acceptance, with two major variables influencing an individual's behavior to accept new technology: perceived usefulness and perceived ease of usage. In The usage of the Technology Acceptance Model (TAM) among the respondents in this study demonstrated a significant agreement on the perceived usefulness of the OPEN LMS utilized by the University, as shown by the data in table 1 with an average weighted mean of 3.47. When the standard deviation of each item is closely examined, which ranges from 0.50 to 0.83, it is clear that respondents' responses are comparable, suggesting that respondents have a similar perception of the utility of the University's learning management systems, which can be attributed to the same reference point, which is the COVID-19 pandemic.

COVID-19 has caused school closures all around the world. As a result, education has altered drastically, with the notable emergence of online learning, in which instruction is done remotely and on digital platforms. Given this, graduate school institutions together with their faculty are duty-bound to enhance their online learning management systems and skills to enable continuation of service delivery in the absence of actual face-to-face sessions. Respondents' high agreement on the perceived usefulness of the LMS given the present circumstance connotes that the use of information technology in education will increase further, and online education is now an important and essential component of classroom instruction.

<b>Perceived Ease of Use</b>	<b>x</b>	<b>sd</b>
It is easy to become skillful at using OPEN LMS	3.22	0.83
It is easy to become skillful at using MSTEAMS	3.33	0.71
The features of OPEN LMS are easy to use	3.22	0.67
The features of MSTEAMS are easy to use	3.44	0.53
Using OPEN LMS is more flexible than traditional face to face teaching	3.44	0.53
Using MSTEAMS is more flexible than traditional face to face teaching	3.33	0.50
OPEN LMS is understandable and easy to navigate	3.33	0.71
MS TEAMS is understandable and easy to navigate	3.44	0.53
<b>Average weighted mean</b>	<b>3.34</b>	

Table 2: Perceived Ease of Use of Learning Management Systems

In terms of the second TAM variable, **perceived ease of use**, the respondents perceived the ease of use of the learning management systems to be very high. This suggests that the respondents rate the use of OPEN LMS as friendly and easy to navigate. Such finding can be attributed to the recent efforts of the department to intensifying the use of its OPEN LMS prior to the COVID-19 outbreak, which included intensive training for all staff on online courses, as well as preparing and developing instructional materials before their formal deployment to students. This further illustrates the importance of training and capacity building of faculty. Several studies have revealed that ICT-related training programs, whether beginner or experienced, develop teachers' competences in computer use (Bauer & Kenton, 2005; Franklin, 2007; Wozney et al., 2006), influence teachers' attitudes toward computers (Hew and Brush, 2007; Keengwe and Onchwari, 2008), and assist teachers in reorganizing the task of technology and how new technology tools are used. In a study conducted by

Lawless and Pellegrino (2007), findings reveal that if a training program is of high quality, educators are eagerly involved in important context activities, teamwork among colleagues is improved, and there is a clear vision for student achievement. But the perceived ease of use for technology is not limited to its physical interface though. In cognitive psychology, for example, the Information Processing Model of Cognition serves as a foundation for interface design. According to Gary (nd) this model demonstrates that: (1) humans have a working memory restricted to five to seven "chunks" of knowledge; (2) people need to refresh their attention often; and (3) recalling information needs more cognitive effort than recognizing information. Menus, query-by-example, and direct manipulation are examples of computer interface styles that adhere to this concept. Menus are preferred over command languages by novices and casual users since identifying a suitable selection is easier than memorizing a command. Because they share the "burden" between physical and cognitive effort, direct manipulation interfaces (such as touch panels in information kiosks or input devices and visual displays in most video games) circumvent numerous psychological constraints. Furthermore, their rapid feedback and reversibility encourage user discovery.

<b>Attitude Toward Using Technology</b>	<b>x</b>	<b>sd</b>
Using OPEN LMS in class is a good alternative to traditional face to face teaching	3.67	0.50
Using MSTEAMS in class is a good alternative to traditional face to face teaching	3.78	0.44
Using MSTEAMS in class is favorable	3.56	0.53
Using OPEN LMS in class is favorable	3.22	0.83
I think it is valuable to use OPEN LMS in class	3.44	0.73
I think it is valuable to use MSTEAMS in class	3.56	0.73
I think asynchronous online learning is needed for the future of education	3.89	0.33
I think synchronous online learning is needed for the future of education	3.67	0.50
<b>Average weighted mean</b>	<b>3.60</b>	

Table 3: Attitude toward Using Technology

Generally, the respondents hold a very positive view in using technology in their teaching with an average weighted mean of 3.60. With more than 1 year of delivering online learning, the very high agreement and the consistency (**sd**) in the answers of the respondents show that they have already adjusted to the new modality. Given the current circumstance where health and safety are at risk, respondents believe that while contemporary modalities may not be completely equivalent to conventional settings, they do give an alternate method of maintaining educational continuity.

Numerous literatures confirm that teachers' attitudes toward using technology are crucial in the effective implementation of any learning program. According to Teo (2009) and Venkatesh, et.al (2003) as cited by Kisanga (2016), there are two types of variables that influence teachers' attitudes toward technology namely internal and external variables. Internal variables include instructors' internal beliefs about technology, which are formed by the degree to which instructors evaluate the technology favorably or unfavorably, while external variables include subjective norms (Ajzen & Fishbein, 1980), organizational structure (Rogers, 2003), technical factors such as technology complexity (Rogers, 2003; Weller, 2007), and environmental factors such as ICT infrastructure, ICT features and support and many more (Chien, Wu, & Hsu, 2014; Teo, 2009).

<b>Continuance Intention</b>	<b>x</b>	<b>sd</b>
I intend to learn the other features of OPEN LMS	3.78	0.44
I intend to learn the other features of MSTEAMS	3.78	0.44
I intend to provide variety of assessments using the different learning activities in OPEN LMS	3.75	0.46
I intend to provide variety of activities using the different learning activities in MSTEAMS	3.67	0.5
I intend to continue using OPEN LMS to supplement my synchronous teaching	3.67	0.5
I intend to continue using MSTEAMS to supplement the asynchronous online learning of my students	3.67	0.5
I intend to attend trainings and workshops in OPEN LMS	3.67	0.5
I Intend to attend trainings and workshops in MSTEAMS	3.67	0.5
<b>Average weighted mean</b>	<b>3.71</b>	<b>0.5</b>

Table 4: Continuance Intention

The results in table 4 demonstrate that respondents are **very likely to continue** using the University's learning management systems, with an average weighted mean of 3.71. This is further confirmed by the consistency in their responses, with standard deviations ranging from 0.44-0.50. The respondents' intention to stay is linked to their attitude toward adopting learning management systems, which also indicated a very high level of agreement among respondents. This finding is backed by a large body of literature. For instance, according to Davis (1989), as quoted by Teo (2019), a behavior's intention to use is determined by one's attitude toward computer/technology usage. He goes on to argue that if users have a favorable attitude about computer use, they will create the intention to act consistently (Teo, 2019). This was verified in a study done by Yi and Hwang (2003), who discovered that when users have a strong desire to utilize university resources for teaching and learning, they visit university websites more frequently and stay longer than those with weak intentions. Furthermore, perceived usefulness was discovered to predict behavioral intention. Davis as cited again by Teo (2019) also proposed that when consumers considered technology to be beneficial, it would have a direct impact on intention to use technology.

### **Barriers to Technology Integration**

Among the **major obstacles/barriers** that graduate school faculty consider in making effective use of technology inside and outside the classroom are the unpredictability of computers (can easily crash and lose data), an unstable wifi connection inside the classrooms and an Internet connection that is slow or drops connection.

### **Conclusions**

There has been a greater reliance on digital-online technologies during the Covid-19 epidemic. People all across the globe rely significantly on internet platforms to connect, transact, and learn. Similarly, the educational system relies on internet technologies to conduct teaching.

In this study, the perceived ease of use and usefulness of the University's online learning system are impacted by trainings organized and conducted by the Graduate School department, as well as the necessity to adapt due to the current circumstances.

The study's findings suggest that professors' positive views about the utilization of learning management systems are important if the University's graduate education is to successfully transition from the traditional approach to online learning. This emphasizes that teachers are critical stakeholders in education, and their views about adopting online learning have a big effect on students' perspective and motivation about online learning.

Lastly, the study's conclusions on the impediments to technology integration differ dramatically from those mentioned in the literature. Unlike those in the literature, which included both internal and extrinsic barriers, as analyzed by Maguire et.al (2007), the data obtained from the results of this study focused on infrastructural barriers, namely the reliability of internet connections for both faculty and students. This can be ascribed to the location of the research. Unlike previous studies that were conducted in first-world countries where connectivity was not an issue, the current one was being conducted in a third-world country that is said to be the second slowest in internet speed among the 10-member Association of Southeast Asian Nations (ASEAN), and 110th among 139 countries (Porcalla, 2020). However, despite the reservations about the country's sluggish internet connection in general, respondents were fast to adopt and adapt.

## **Recommendations**

In the light of the findings obtained from the study, the following recommendations are given.

- Comprehensive technology integration and faculty development plans to improve graduate school faculty capacities are highly suggested. These include but not limited to the following:
  - a. Structured opportunities for in-service retraining, upgrading, and acquiring new information and skills, such as school-based workshops and trainings;
  - b. Needs-based just-in-time learning and peer coaching to ensure further development of teachers' ICT and pedagogical skills (ILO-UNESCO-World Bank,2020).
- A comprehensive ICT development which include procurement of needed infrastructure is necessary to sustain the technology initiatives of the institution;
- Up skilling of current technical support personnel is vital in providing effective onsite or remote assistance to faculty and students;
- An establishment of an educational technology office/unit is necessary to cater to the evolving needs of faculty and students as well.
- A follow up research is needed to determine improvement in the technology integration skills, usage and application of faculty.

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## ***Meeting Generation Z Learning Expectations in Quest International University***

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### **Abstract**

Students currently studying in higher learning institutions are part of Generation Z known as the Gen Zers. Available literature on Gen Zers mostly focus on understanding and distinguishing them from previous generations by highlighting their personality traits, characteristics and learning preferences but lack information on the extent to which Gen Zers rate the different teach-learning methods as important and the extent to which they are satisfied with the approaches used by their lecturers. As such, the aim of this study is to verify the methods that literature presents as important for Gen Zers' learning and to check against the students' satisfaction level for those methods. Data were collected from final semester students in a private higher education institution in Malaysia. A survey questionnaire instrument with thirty items on importance and the same thirty items on satisfaction, as well as two open-ended questions were administered online. The Importance-Satisfaction Analysis and gap analysis for each of the items on teaching-learning methods were conducted on the quantitative data while thematic analysis was conducted on the qualitative data. Results from this study showed that all the teaching-learning methods identified received a high rating for both importance and satisfaction, hence meeting the students' expectations. This indicates that the lecturers have done a good job tailoring their approaches to engage with their students. Additionally, based on the findings from the gap analysis, recommendations are made on the teaching-learning methods that can be further improved to increase the Gen Z students' satisfaction levels.

Keywords: Generation-Z, Importance, Satisfaction, Teaching-Learning, Gap Analysis

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## 1. Introduction

The current generation of students entering universities is known as the Gen Zers, iGen, or centennials. According to the Pew Research Center as cited by Dimock (2019), people in Gen Z are born after the year 1997. They are said to possess a unique set of characteristics and behaviour, that set them apart of the previous generations such as the Millennials (Gen Y), the Gen X, the Baby Boomers and the Silent Generation (Breman & Rao, 2017; Iberdrola, 2021; Nicholas, 2020; Parker & Igielnik, 2020). Tagged as “digital natives,” Gen Z are tagged as consummate multitaskers, achievement oriented, and sheltered. They do not know a world without personal digital devices like smartphones and tablets. Because of that, most or all have had access to nearly any information or service around the clock (Seemiller, 2017).

First, it is important to clarify the differences between Generation Z and their preceding generation – the Millennials (Maloni et al., 2019). Compared to the Gen Zers, the Millennials are behind Generation Z in the use of technology. In fact, a substantial number of researches has been conducted on Gen Zers (Wondergem, 2017; Francis & Hoefel, 2018; Dell Technologies, 2019; Maloni, et al., 2019; Ng, et al., 2019; PricewaterhouseCoopers, 2020; Brandman University, 2020). It is foreseen that this generation can control technology better and they will make up a substantial percentage of the workforce (Knapp et al., 2017). For this generation, their mobile phone turned into their portable computer.

### 1.1 Problem Statement

Teaching-learning methods have evolved with time. Adapting to learner characteristics and preferences are now considered a very important element in achieving the desired learning outcomes. Where teachers were once considered the sage on the stage, they are now more than ever, increasingly moving on to the role of the guide by the side. Where role learning and didactic methods were once deemed THE methods to be used for quite a while many years back, the emergence of new tools and technologies has necessitated a change in the type of learning resources provided to students and the way teachers engage students in learning. In fact, online teaching and learning in higher education accelerated the discussion with issues related to online learners, instructors, and content development (Kebritchi, et al., 2017). While the teachers who teach Gen Zers are of a different generation and may not necessarily have the same inclination or the same characteristics as their students, they would still be expected to approach teaching-learning in a manner that is engaging and effective (Miranda, 2020).

### 1.2 Research Questions

Modern teaching and learning require constant adaptation with new generations. Higher education institutions need to stay keenly and promptly attuned to shifts in student expectations. Hence, the questions that arise are:

1. What teaching-learning methods do the Quest International University (QIU) Generation Z students consider as important for them to learn effectively?
2. What are the teaching-learning methods utilised by QIU lecturers that the students are satisfied with;
3. In the eyes of the students, to what extent do the university lecturers in QIU utilize the teaching-learning methods that satisfy the students preference to learn effectively.

### 1.3 Research Objectives

The research questions of this study therefore led to the following objectives:

1. Identify the teaching-learning methods deemed important to QIU Generation Z students to learn effectively;
2. Identify the teaching-learning methods utilised by QIU lecturers that the students are satisfied with; and
3. Examine the extent to which the teaching-learning methods utilised by QIU lecturers satisfy the preferences of their students.

## 2. Literature Review

The importance of teaching-learning methods used by educators to help them achieve the desired learning outcomes has been expounded by numerous researchers and educationists (Cruickshank, Jenkins & Metcalfe, 2011; Lile & Kelemen, 2014). Bourner (2008), studied different approaches to teaching-learning methods based on learning aims. The author agreed that enhanced access to the ever-growing technology in education is said to open up new possibilities to teach and learn. The next section provides a brief review of current teaching-learning tools and assessments; and learning resources available. Then, Gen Zers study preferences are discussed leading to the need of understanding the QIU Generation Z students' importance in teaching-learning methods and their satisfaction.

### 2.1 Learning Resources

According to Shengji et al. (2009), college and university lecturers need to establish new teaching philosophy and change their teaching methods as the education scenario changes. In fact, it is important for teachers to design learning that matches students' learning styles and their preferred learning resources, rather than those that reflect their preferences (Franzoni and Assar, 2009; Scott-Weber, 2012). In order to attract and gauge Gen Z attention as well as to address their academic, personal and career needs, educational institutions must be able to develop digital strategies both inside and outside the classroom (Fyfe, 2018).

### 2.2 Technology-mediated Learning

The rapid development of technology breathes new life into various teaching and learning tools (Hashim, 2018). With technology, the process of teaching and learning is not limited to the classroom. As part of the learning repertoire, visualizations, simulations, case analyses, and other methods of participatory learning such as fieldwork can be included to meet the needs of diverse learners.

Problem-based or active learning approach is learner-centred and marks a significant change in curriculum design and delivery. This kind of active learning experience is a powerful means of embedding new learning into the brain. The rationale is that when there is an associated emotional component, such as when multiple senses are engaged, the brain actually forms more neural connections, furthering retention (Rickes, 2016).

In fact, 'Game-Based Learning' can be effective tools for scaffolding concepts and simulating real world experience which enables learners to acquire knowledge and enhance learning through multiple intelligences (Iaremenko, 2017; Hashim, 2018). Kahoot, Quizlet,

Quizziz, and Socrative, among others are examples of the online applications or games that could be utilized.

Moreover, cloud computing, an Internet-based computing in which shared resources, software and information are delivered as a service that computers or mobile devices can access on-demand is used by learners and educators to support learning, social interaction, content creation, publishing and collaboration. Some examples of these would include; Massive Open Online Courses (MOOC), Open Educational Resources (OER), Google Apps, YouTube, Twitter and Dropbox (Hashim, 2018).

### **2.3 Learning for Generation Z**

A review of the literature pertaining to Gen Zers' preferred learning resources indicate that this generation are in an age of instant gratification, prefer receiving information through visual imagery, for example in the form of videos like YouTube (Cameron & Pagnattaro, 2017; EHL Insights, 2020; Miranda, 2020). Proving this, Claveria (2017) indicated that Gen Zers are found to visit Youtube more often at 72% compared to Millennials at 52%.

Similarly, the Gen Zers are known to love social media, especially those that are rich in multimedia such as Instagram (World Economic Forum, 2019). They use social media frequently to connect with people, for information sharing and information usage (Yadav & Rai, 2017). They also communicate with each other in an arcane texting language laden with an ever-growing "vocabulary" of emojis and acronyms.

Lectures and printed books did not rate highly with Generation Z. They are more inclined to use e-books (Nicholas, 2020) as they can easily search for keywords that will help them read more effectively. Aptly concluded by Vinh (2020), the reading habits of generation Z are unique whereby they do not read less than previous generations, but they read different things and in different ways.

Gen Zers also prefer active learning activities and require quick feedback or response from their lecturers (Seemiller & Grace, 2016; Martin, 2017; Nicholas, 2020; Isaacs et al., 2020). Gen Zers want to be able to reach out to their lecturers quickly for extra help outside class time via online chat.

Both Seemiller and Grace (2016) and Nicholas (2020) found that Gen Zers preferred to learn practical knowledge for future work application and strongly favoured working with someone from the industry as part of their coursework. Seemiller and Grace (2016) in their in-depth study of over a thousand Generation Z college students found that 79% of Generation Z prefers to learn through examples of practical experiences such as projects and internships. The authors also noted that they prefer their teachers to be facilitators rather than lecturers. This way of learning benefits Gen Z where it allows them to apply their academic, teamwork and analytical skills (Gardner, et al., 2018).

Martin (2017) posited that Gen Zers have a competitive nature and therefore will enjoy gamification elements in the courses they enrol in. This view is supported by Schwartz (2019) who presented cases whereby gamification has been used to encourage student success. The next section discusses the suggestions and effort within the literature in meeting Gen Zers learning needs.

## 2.4 Meeting Generation Z Preferences

It is important to understand that this generation is wired to sophisticated, complex visual imagery which means that their visual abilities are far more developed than leading to learning more effectively in visual form (Rothman, 2016; 2018). They can in fact, watch a learning video and successfully complete an assigned task – highlighting the need for technology-mediated teaching resources.

Besides that, active learning activities, quick feedback and response time is the kind of support that resonates with the Gen Zers students' lifestyle (EHL Insights, 2020). Solving problems in class is a key strategy to get Gen Zers to learn course material (Nicholas, 2020). These kinaesthetic, experiential, hands-on learners like to see an example before attempting to do it by themselves. Thus, interactive games such as the 'Kahoot' game-based learning platform, collaborative projects, advance organizing and activities that require meeting challenges in Generation Z classroom experience are recommended to increase interactivity (Vinh, 2020).

Having shorter attention span which is at 8 seconds (Sparks & Honey, 2017), is a challenge in making sure Generation Z are captivated by long course materials. According to Cameron and Pagnattaro (2017), Generation Z are supplemented with emojis and fast thumb work that allows this generation to be fast in note taking. Hence, microlearning is proposed (Jermyn, 2018; Kelly, 2019) Microlearning is defined as learning in little bits. This approach anticipated Generation Z's everyday habit of immersing in short videos such as Youtube and 'Tik Tok' videos and thus long lectures are deemed to be less effective on these students.

The following section highlights the significance of this study in understanding the learning expectations and meeting the needs of Gen Zers in a private higher education institution.

## 3. Methodology

### 3.1 Instrument

Items for the research instrument are gleaned from the literature review of teaching-learning methods that have been identified as those aligned to Gen Zers' characteristics and learning styles. The students were required to rate the level of importance of the teaching-learning methods identified based on a five-point Likert-type scale, namely, (1) for Not at all important; (2) for Not very important; (3) for Somewhat important; (4) for Important; and (5) for Very important. For the same items, the respondents rated their satisfaction towards lecturers' use of the identified teaching-learning methods, on a five-point Likert-type scale, that is, (1) for Not Satisfied at all; (2) for Not Satisfied; (3) for Moderately Satisfied; (4) for Satisfied; and (5) for Very Satisfied. Two open-ended questions were also asked at the end of the questionnaire, namely, 1) Please share with us what you like BEST about learning in QIU and 2) If there is ONE thing that you can change about how teaching-learning is conducted in QIU, what would that be and why? These questions aim to triangulate the results obtained from the likert scale questionnaire component and further probe into revealing a glimpse of reasonings behind what respondents thought about the teaching and learning methods that needed to be improved by their lecturers.

### 3.2 Population and Sample

Respondents in this study are QIU's students in the Foundation programmes, namely the Foundation in Arts, Foundation in Business and Foundation in Science. The cohort who are the targeted respondents (sample) are all students from the July 2020 cohort who were final semester students in the April 2021 study intake. The choice of collecting data from Foundation programme students is due to them having not fully immersed in the university curriculum compared to students from undergraduate studies and thus, their learning expectations would still be considerably unrestrained towards a higher education institution. Additionally, final semester students were chosen because they would provide a more accurate response if their original expectations were met as they would have a longer experience as a university student in QIU compared to the later cohorts.

### 3.3 Data Collection

A pilot study was conducted among the final semester Foundation students at the beginning of the April 2021 study intake. Data from this pilot study were then used to determine the reliability of the instrument and enable the researchers to check if the instrument needs to be further improved. The actual study was conducted towards the end of the April 2021 study intake. Since some of the researchers of this study are also Heads of the Foundation Programmes, data collection was conducted in a way where assigned researchers collect data from students that are not from the Foundation programme that they are in-charge of; on top of respondents filling up the survey questionnaire anonymously.

### 3.4 Data Analysis

Data were analysed using the Statistical Packages for Social Sciences (SPSS) software for the survey instruments as well as ATLAS.ti version 9 for the additional 2 open-ended questions.

For the survey instruments, the mean and standard deviation for items relating to both Importance and Satisfaction were obtained for each teaching-learning method identified. The data were then be ranked from the highest value to the lowest.

Next, to examine the extent to which the teaching-learning methods utilised by QIU lecturers meet the preferences of their students, the Importance-Satisfaction Quadrant Analysis were used. "Importance" is defined as the perceived value attributed by the student for a teaching-learning method while "Satisfaction" is the judgment made by the student about the fulfilment of their expectations or needs relating to that teaching-learning method.

Originally, Martilla and James (1977) proposed the Importance-Performance Analysis to measure 'consumer acceptance' of certain features in a marketing programme (p. 77). Such a technique enabled researchers to examine both aspects of the consumer acceptance question, when prior to that, only one side (either importance or performance) was examined at any one time. In the Importance-Satisfaction Analysis, Performance is replaced by Satisfaction. According to Silva and Fernandes (2011), the 'Satisfaction' is widely used to replace 'Performance' as "satisfaction provides information to analyse the performance of a results-based institution" (p. 270). Additionally, citing several other authors, they were of the opinion that "satisfaction has become the main measure of service quality, particularly for higher education institutions" (p. 270).

For this study, a matrix was generated to visualise the relationship between Importance and Satisfaction ratings. The overall mean for Satisfaction was plotted against the overall mean for Importance, for each teaching-learning method. Based on the quadrant analysis that is obtained, the results were interpreted as follows (refer to Figure 1):

1. The plotted values that fell in the upper right quadrant (Quadrant I – high Importance and high Satisfaction) means that the teaching-learning methods used by the lecturers are considered strengths;
2. The plotted values that fell in the upper left quadrant (Quadrant II – high Importance but low Satisfaction) means that there are opportunities for improvement in the teaching-learning methods identified;
3. The plotted values that fell in the lower left quadrant (Quadrant III – low Importance and low Satisfaction) means that the teaching-learning methods may be considered of low priority to be emphasised on; and
4. The plotted values that fell in the lower right quadrant (Quadrant IV – low Importance and high Satisfaction) means that the teaching-learning methods are considered to have exceeded the expectations of the students.

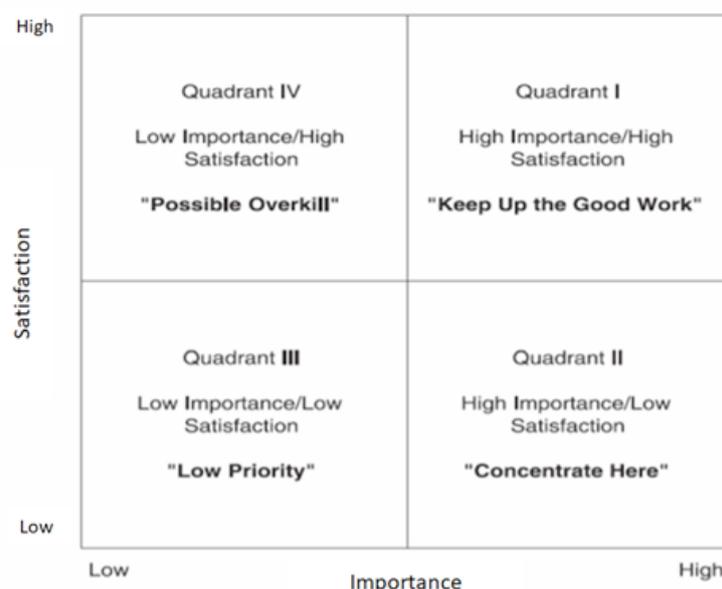


Figure 1: Importance-Satisfaction Ratings Matrix

### 3.4.1 Importance-Satisfaction Analysis

In addition, a gap analysis was also conducted to identify the gaps that exist between Importance and Satisfaction for each of the teaching-learning methods identified. The gaps between Importance and Satisfaction were measured by subtracting the mean score for Satisfaction from the mean score for Importance. For the values from this analysis are positive, it implies that the students' Satisfaction is lower than the Importance that was attributed by students to the teaching-learning method, and vice versa. Items with large positive gaps are indicative of teaching-learning methods that need improvement while small positive values may be considered as strengths of the lecturers. The gaps were rank ordered from the most negative to the most positive

#### 4. Results and Discussion

Based on the data collected from 107 respondents in the pilot survey who are students from different semesters of the Foundation Studies programme, the Cronbach alpha coefficient was established to be 0.96 and 0.97 for the 30-item Importance section and the 30-item Satisfaction section respectively. This indicates that the instrument is of high internal consistency reliability in measuring both attributes.

A total of 67 students from the Foundation Studies level programmes participated in this study. As shown in Table 1, out of the 67 students, three respondents or 4.48% were eighteen years old, 50 respondents or 74.63% were nineteen years old, eleven respondents or 16.42% were twenty years old and one respondent or 1.49% was from each of the 21, 22 and 23 years old age groups.

Age (years)	Number	Percent
18	3	4.48
19	50	74.63
20	11	16.42
21	1	1.49
22	1	1.49
25	1	1.49
Total	67	100

Table 1: Respondents Breakdown by Age

Of the 67 respondents, 18 students or 29.36% are from Foundation in Arts, 26 students or 38.81% are from Foundation in Business and 22 or 32.83% are from Foundation in Science (refer to Table 2).

Study Programme	No	Percentage
Foundation in Arts	19	28.36
Foundation in Business	26	38.81
Foundation in Science	22	32.83
<b>Total</b>	67	100%

Table 2: Respondents Breakdown by Programme

##### 4.1 Importance Satisfaction Analysis

The results obtained from the Importance-Satisfaction Analysis (Figure 3) show that all the teaching-learning methods identified fall into Quadrant I (high Importance and high Satisfaction) with none of the teaching-learning methods located in Quadrants II, III and IV. As such, we may conclude that those teaching methods are the strengths of the university lecturers who teach the foundation level students.

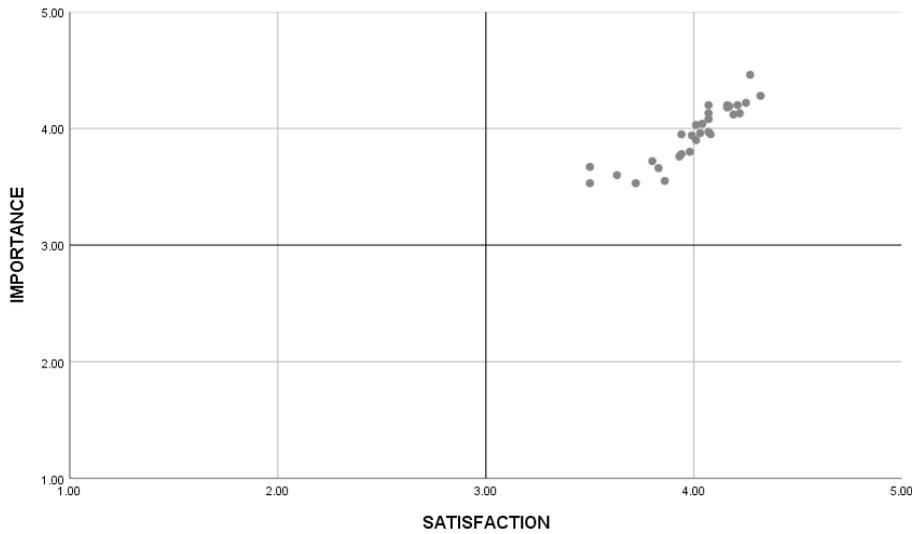


Figure 2: Importance-Satisfaction Analysis (ISA)

Taking a closer look at Quadrant I of the ISA matrix (Figure 3), respondents are most satisfied with item 1, that is, communicating with students using WhatsApp. This is followed by item 22 (working through examples to help students understand concepts) and item 4 (engaging students in whole class discussions). Of these three items, the respondents ranked ‘working through examples to help students understand concepts’ most important, followed by ‘communicating with students using WhatsApp’ and then ‘engaging students in whole class discussions. This is in accordance with the claims of Jermyn (2018) and Nicholas (2020) where experiential learning and problem-solving are preferred over pure lectures. Meanwhile, previous studies that established Gen Zers as digital natives preferring online communication over face-to-face interaction (Bourner, 2008; Yadav & Rai, 2017; Miranda, 2020) proved to be true for QIU Gen Zers. Fortunately, these expectations were also met with satisfactions at QIU albeit, more efforts could be included to provide practical experiences in class such as inviting industrial experts for class discussion, real-world case studies and gamification since this is what students placed the most importance.

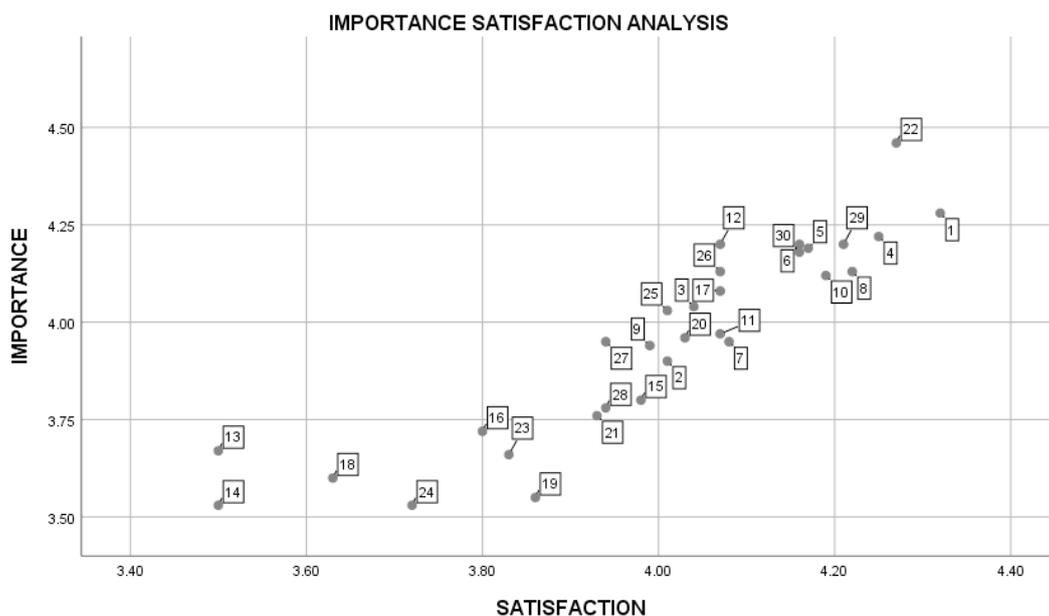


Figure 3: Quadrant I of the ISA

## 4.2 Gap Analysis

For the gap analysis, positive values imply that the respondents' satisfaction level is lower than that of the level of importance attributed to the teaching-learning methods identified. On the other hand, negative values imply that the respondents' satisfaction level is higher than the importance attributed to the teaching-learning methods. Out of the 30 teaching-learning methods identified and presented in the questionnaire, responses obtained show that there were eleven items with positive gaps, 18 items with negative gaps and one item (providing digital learning materials) with zero gap value, i.e., the satisfaction level matched the level of importance attributed to the item).

Figure 4 depicts the gap between Importance and Satisfaction for all items with positive values. The teaching-learning method with the largest positive gap (0.19) where lecturers will need to improve on is item 22 'working through examples to help students understand concepts'. This is followed by item 13 (inviting industry people as guest lecturers for some topics) with a gap of 0.17 and item 12 (include practical knowledge related to future employment in the course) with a gap of 0.13.

The remaining teaching-learning methods with small positive gaps ranging from 0.01 to 0.06 (in decreasing value) which may be considered the strengths of the lecturers are as follows:

- Using positive behaviour management techniques like rewards as compared to using sarcasm and punishment (item 26);
- Giving immediate feedback on questions about assignment/ lectures/ tutorials (item 6);
- Using printed reference books as reading material (item 14);
- Responding to students' questions on course related matters outside class time (item 5);
- Using interactive multimedia for lessons (item 25);
- Providing experiential learning, i.e. learning through experience and reflection (item 30);
- Breaking up assignments into smaller tasks (item 27); and
- Emphasising on problem-solving activities/ Action Learning (item 17)

While most of the items listed are a reflection of the literature, item 14 proved to be a surprising factor. Results showed that students actually want to have physical printed reference books as opposed to the preference of using e-book/ materials as claimed by Nicholas (2020). This may be due to Foundation students being mostly from the traditional primary and then high school where they are used to using physical text books.

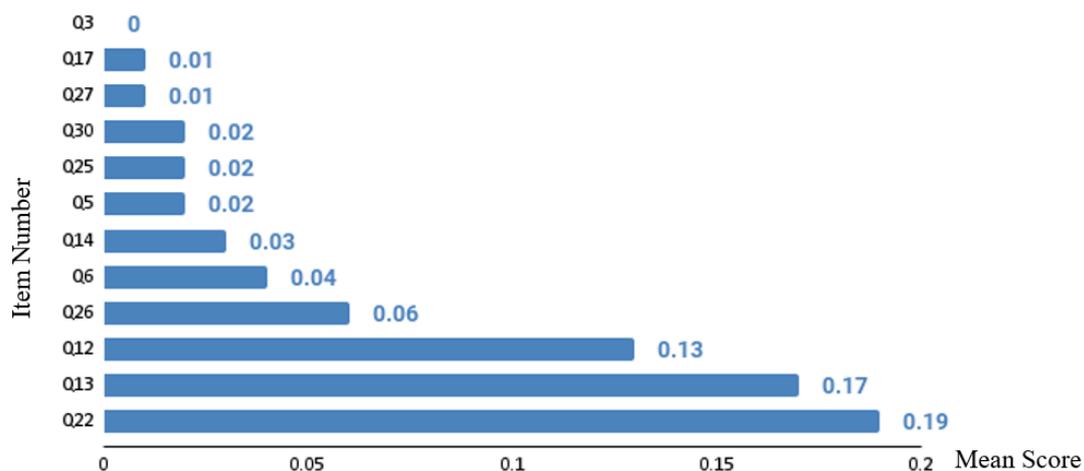


Figure 4: Importance-Satisfaction Gap Analysis with Positive Values

On the other hand, the teaching-learning methods with negative gap values (Figure 5), from the highest negative value to the lowest are:

- Asking students to do reflections as part of class activity (item 19);
- Having Active Learning activities (item 24);
- Learning in small groups for tutorials (item 15);
- Communicate using images, icons and emojis (item 21);
- Using Flipped Learning approach (item 23);
- Using advance organisers (item 28);
- Having up small group discussions among students during class (item 7);
- Using videos as resources for learning (item 2);
- Include games during lessons (item 11);
- Focusing on problem-solving activities during class time (item 8);
- Allowing peer assessment in class (item 16);
- Providing in-class demonstrations, where relevant (item 20);
- Using graphics to highlight important points (item 10);
- Providing lectures notes in the form of text (item 9);
- Communicating with students using Whatsapp (item 1);
- Engaging students in whole-class discussions item 4);
- Helping student to remember important points by using visual images (item 18);
- Letting students engage in debate-style discussions (item 29).

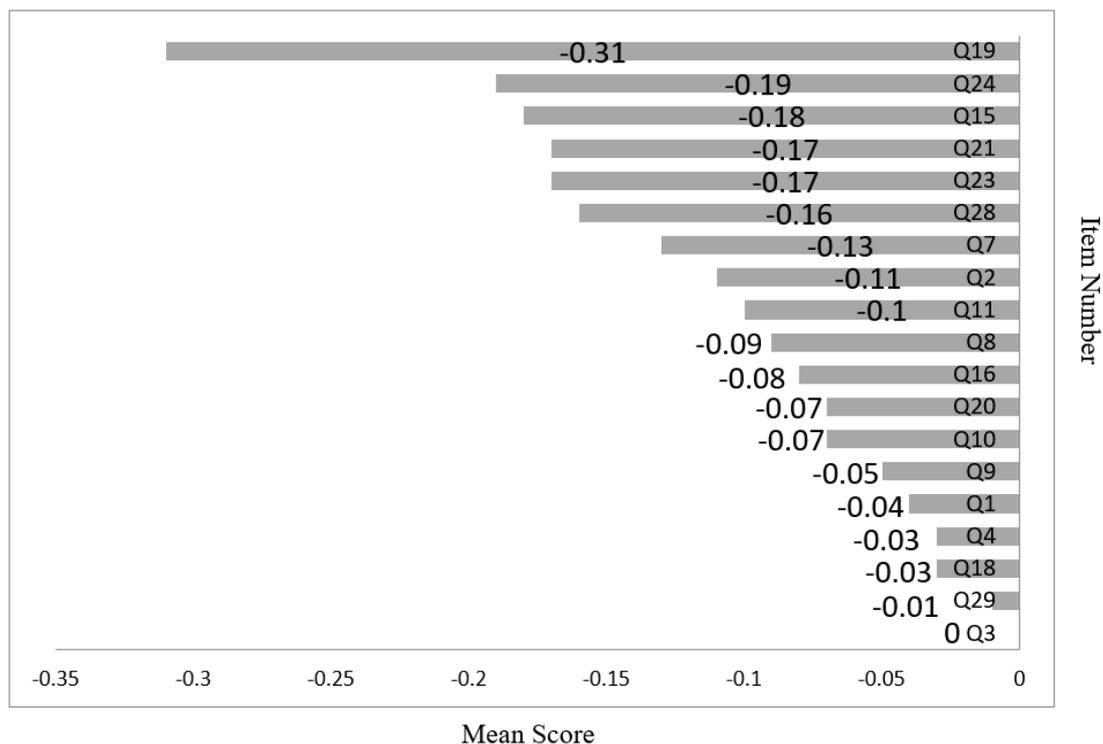


Figure 5: Importance-Satisfaction Gap Analysis with Negative Values

This showed that students, while did not highly expect it, they are highly satisfied with interactive methods like reflections, diversified and active learning; and learning in smaller groups. All these are similar to previous studies concluded in the literature (eg. Seemiller & Grace, 2016, 2017; Hashim, 2018; Miranda, 2020). This is possibly due to foundation students being mostly direct coming from the high school environment, such interactive and inclusive teaching and learning methods were unfamiliar.

To further validate the results, a paired samples t-test was conducted to compare the Importance level and the Satisfaction level of the respondents. Results show that that there is a significant difference between the mean obtained for Satisfaction (mean = 4.00, S.D. = 0.21) and the mean obtained for Importance (mean = 3.96, S.D. = 0.25);  $t(29) = 2.14$ ,  $p < .05$ . The results of this paired t-test for the two attributes Importance and Satisfaction have established that the responses to the two attributes are not due to random chance (Martilla & James, 1977; Chaudary & Warner, 2016).

### 4.3 Thematic Analysis

For the two open-ended questions asked, the study recorded a total of 66 and 54 responses for Question 1 (Q1) and Question 2 (Q2) respectively. There were 127 groundedness of codes and 58 codes were created from all the responses of both the open-ended questions. 3 themes emerged with the following order – Lecturer Commitment, Fun Pedagogy and Attention Enabled.

#### 4.3.1 Lecturer Commitment

This theme was the most important because it encompasses 3 highest codes for Q1 and is one of Q2 top 5 codes in terms of groundedness. Since these 3 codes – helpful (Gr=12), friendly

(Gr=8) and kind (Gr=6) were referring to the lecturer's personality, a further co-occurrence analysis was done where we found that these codes are also related to 'dedicated' and 'patience' (Figure 6). Hence, this theme emerged.

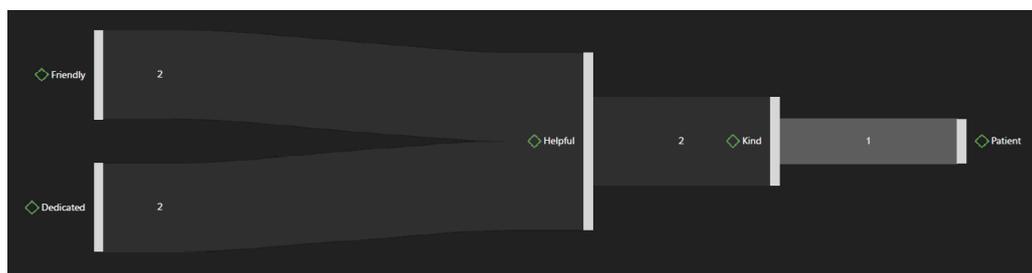


Figure 6: Co-occurrence Analysis

### 4.3.2 Fun Pedagogy and Attention Enabled

Fun Pedagogy is the next main theme mainly because 'Interactive class' (Gr=5) is higher in Q1 than 'Small classroom' (Gr=4) that represents the latter theme. This theme is more mentioned in Q2 (ie. 'More activities preferred' and 'Gamification preferred') than again, 'small classes preferred'. The reason why 'small classes/classroom' can both be a satisfaction and a need were due to them being exposed to different courses throughout their study where some classes are smaller or larger than the other. Since these responses comes from students of 3 different Foundation programmes, the classes that they are take varies at different time. The study did not specify in asking which semester or course they were referring to because it may incur bias for the study. Nevertheless, the results do reveal the importance of allowing individual attention in classroom as this was both mentioned highly in Q1 and Q2.

Overall, number of responses as well as the groundedness of codes (Q1 > Q2) correlates with the results obtained from the survey instruments where students are more satisfied with the teaching and learning methods conducted at QIU compared to the teaching and learning methods that they think should be improved on. The 3 main themes are also in accordance to the literature where students prefer lecturer's commitment (Seemiller & Grace, 2016; Martin, 2017; Nicholas, 2020; Isaacs et al., 2020), a fun and active learning environment (Vinh, 2020) and for attention to be given to them in small groups (Rothman, 2016, Seemiller & Grace, 2017).

### Limitations and Conclusion

Student voice is increasingly deemed as an important element in student learning. While the tasks of education include many different goals, the biggest goal in teaching and learning is that the students improve their ability to effectively receive different information and achieve better learning results. This study continues to verify the teaching-learning preferences highlighted in previous literature, contributing to the ever-growing understanding of Generation Z.

The findings from this study also help shed light on the teaching-learning methods that students prefer as well as those that need to be improved among QIU lecturers. The findings can be used to encourage lecturers to pay more attention to the methods that have been identified. Additionally, based on the findings from this study, suggestions can be made for the university to conduct workshops aimed at improving lecturers' competencies in delivering the identified teaching-learning methods that students rated highly important to

them but were not rated high enough in regards to lecturers' performance such as using more practical examples in their teaching and learning.

Although this study shed light on the teaching-learning methods that students prefer as well as those that need to be improved among QIU lecturers; the scope of respondents did not include diploma level students as the number of semesters for foundation level and diploma level programmes are not identical. The final semester diploma students are generally at the end of their two and a half years study. The inclusion of diploma students will beat the purpose of sample selection for this study that is to gauge the original learning expectations of Generation Z students when they are not fully immersed in the university curriculum. Meanwhile, inclusion of only semester three diploma students (to achieve the same period of study with the final semester Foundation students) will incur the issue of bias for the diploma programme students.

Besides that, the amalgamation of all 3 foundation programme students in the study proved to be confusing on the qualitative end when it is hard to determine which programme courses were the respondents referring to in their replies or if they were referring to a summary of all classes. Perhaps this study can be done by Programme in the future to obtain more specific results and comparisons by programme can be made.

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*A Collaborative Online International Learning Case Study Between the University of Hawai'i Hilo and Hong Kong Baptist University*

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The Asian Conference on Education 2021  
Official Conference Proceedings

**Abstract**

With continuous globalization and technological improvements, today's marketers need to effectively design marketing strategies for global markets that companies of various sizes can pursue. An effective way for students to gain this experience without spending money on travel is to conduct COIL (Collaborative Online International Learning) classroom experiences. COIL was first established in 2006 and has grown in popularity for faculty worldwide, especially during COVID-19. The course intended learning outcomes for the "Services Marketing" course in College of International Education- Hong Kong Baptist University (CIE-HKBU) is for students to understand and to recognize the customers' needs and behavior, to integrate marketing strategies with operations and human resources, and design marketing framework for business. The course intended learning outcomes for "Marketing Management" in the College of Business and Economics- UH Hilo is for students to incorporate project management principles with their knowledge of marketing foundations. Students do multiple projects throughout the semester in various parts of the marketing process. To help students achieve these objectives from a global perspective, CIE-HKBU and the University of Hawaii created a unique learning experience for our students using the Collaborative Online International Learning (COIL) framework. Participants included university students from the University of Hawaii Hilo Bachelor of Business Administration Program and Associate Degree students in CIE-HKBU. Quantitative and qualitative analyses is in the follow-up assessment. Students from both countries benefited from this learning experience. Findings from students' reflections after the experience indicated deeper intercultural sensitivity in their marketing strategies and ability to view an issue from different perspectives. Students' responses that the activity enhanced their understanding of the subject objectives/ contents. Overall, the COIL activity strengthened the integration of multicultural learning experiences in both countries.

Keywords: Collaborative Learning, Intercultural Competence, Cross-Cultural Learning, Online Collaboration

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## **1. Introduction**

### **1.1 Introduction to the Problem**

With the improvement in technology and application of the web, marketers need to understand more about the global environment. Businesses increasingly need to expand the business to overseas countries and/or work with overseas partners. Moreover, due to the outbreak of COVID 19 and some other financial constraints, not all students can have the chance to go to overseas countries for academic exchange programmes. COIL is an option that provides opportunities for students to contact overseas students, communicate and work together for a project or an activity.

### **1.2 The Importance of the Problem**

The main goal of the COIL activity is to develop students' cross-cultural competence in the marketing field. The activity featured two presentations, one conducted at the beginning of the semester and one conducted at the middle-end of the semester. The first presentation featured each group of students introducing a product/service that is popular and only available in their country. UH Hilo students introduced products from Hawai'i and the US, HKBU students introduced products/services from Hong Kong and China. Students also introduced various holidays in each location, marketing campaigns popular with the Gen Z population, and consumption methods in their home country. For the second presentation, UH Hilo and HKBU then selected a product/service from the other student groups to design a marketing campaign to expand their country. For example, UH Hilo students creating a marketing plan and campaigns to bring Halidao Hotpot Restaurant to Hawai'i.

### **1.3 Describe Relevant Scholarship**

COIL, established in 2006, stands for Collaborative Online International Learning (Rubin & Guth, 2015). "COIL projects allow for collaborative partnerships that span borders. For example, students from a university in Russia could be paired with students in the USA for partnership on a similar curriculum." (Minei, Razuvaeva, Dyshko, 2021)

"Students would have the opportunity to work through dissonant experiences. The opportunity to deal with dissonant experiences is essential in that dissonant experiences put students in challenging or uncomfortable situations... it forces students to examine their previously helpful assumptions" (Motley & Sturgill, 2013, p 184)

Moreover, "online collaborative learning theory provides a model of learning in which students are encouraged and supported to work together to create knowledge: to invent, to explore ways to innovate, and, by so doing, to seek the conceptual knowledge needed to solve problems rather than recite what they think is the right answer" (Harasim, 2012 as cited by Bates, 2015, para 1).

Although this project was not a semester-long, models were taken from semester-long COIL projects so extensive implementation plans can be studied. For example, the proposed implementation process includes "identify the depth of COIL roles, identify cultural differences, identify learning outcomes, design assessment, design learning materials, assess student cultural

sensitivity, offer ice-breaking activities, run the COIL assignment with reflections, and assess." (Alvarez, 2019, pg. 18-29.)

#### 1.4 Hypothesis and their Correspondence to Research Design

Here is how the HKBU-UH Hilo COIL collaboration accomplished each step:

1. Identify the depth of COIL roles: HKBU instructor contacted UH Hilo instructor for COIL collaboration. There were some role definitions and collaboration between the syllabus.
2. Identify cultural differences: The project's purpose is to identify cultural differences and understand how marketing can alter products, pricing, distribution, and promotions to better suit potential customers from other countries.
3. Identify learning outcomes:
  1. *Below are the defined learning outcomes for UH Hilo students.* Understand the management of marketing efforts beyond the foundations of marketing by focusing on execution.
  2. Practice important concepts like customer profiling, segmenting, targeting, positioning with regards to new brands and innovations, and existing products/services.
  3. Incorporate the 4 P's of marketing (price, promotion, product, and place) to ensure advertising messaging and communications are effective, considering social media and customer service strategies.
  4. Utilize various market research tools to create a marketing strategy and a comprehensive plan.
  5. Understand how to manage marketing plans and execute strategy effectively, collaboratively, and on time.
4. Design assessment: Assessments were designed separately by the instructor, with different weights for assignments with the two groups of students. For UH Hilo students, the project was worth 30% of their total grade.
5. Design learning materials: Each instructor designed lecture materials to explain basic marketing principles (The 4 P's of marketing, SWOT analysis, Gantt chart, and more) along with project guidelines. Instructors then shared their project guidelines.
6. Assess student cultural sensitivity: In this case, the instructors completed cultural sensitivity assessment at the project's conclusion. The paper will reflect on what assessing cultural sensitivity before conducting COIL collaborations would be effective.
7. Offer ice-breaking activities: Due to class schedule limitations, the courses could not meet via Zoom to conduct ice breakers. This paper will discuss what the lack of ice breakers brought as limitations.
8. Run the COIL assignment with reflections: Part 1 and 2 of the COIL projects accompanied by feedback from both student groups. UH Hilo students received feedback from HKBU students regarding what projects were most effective in expanding a Hong Kong product into Hawaii/the US.
9. Assess: Post-project assessments completed by both HKBU and UH Hilo students. Results discussed below.

For starting a COIL project during the academic year 2020-2021, the Hong Kong lecturer under Hong Kong Baptist University (College of International Education) tried to send emails to universities with COIL experience. A few universities responded, and the lecturer tried to understand the concerns and ways to implement the COIL activity for each university. Communication between CIE lecturer and University of Hawaii lecturer was mostly via email. Though there were some misunderstandings in between, the overall process was progressing quite smoothly, and lecturers could respond to each other promptly.

## **2. Method**

The objective of the study is to understand students' perceptions on the impact of the Internationalization activity have on their cultural competency, digital competency and whether students believe the Internationalization activity can help to improve their career prospects. The research will also provide key strategies to conducting a COIL classroom in vastly different time zones.

### **2.1 Participants Description**

For HKBU (CIE), the objectives of the internationalization activity were to fulfill the "course intended learning outcomes," namely to "select strategies for competing effectively in the marketplace by recognizing the customer needs and behavior," "integrate marketing strategies with those in operations and human resources" and "design the 8Ps framework for managing the business".

For UH Hilo (CoBE), the objectives of the internationalization activity were to fulfill the "course intended learning outcomes," namely to incorporate project management principles with their knowledge of marketing foundations. Students were able to do research on products from Hong Kong, conduct a SWOT analysis based on expansion into the US market, and executing Gantt chart schedules to complete marketing campaign materials.

According to the Internationalization Advisory Committee of Hong Kong Baptist University, the university tries to enhance the Internationalization experience of students. "The world we are living in is intrinsically digitalized, globalized and multicultural in nature."

Virtual exchange is an excellent opportunity for (students) to study in a cross-cultural environment, prepare for global challenges, develop digital competency, and improve (their) career prospects."

Students could understand more about how to apply the marketing theories to a real-life scenario through the activity.

Participants included university students (Marketing major) from the University of Hawaii Bachelor of Business Administration and Associate Degree students from College of International Education, Hong Kong Baptist University (Division of Business: Marketing concentration).

The students from the University of Hawaii chose Hawaii/US-based products or services, such as theme parks (Polynesian Cultural Center), camper vans, and fried chicken (Chik Fil-A), for the Hong Kong and Chinese markets. Marketing students in CIE need to design marketing strategies suitable for expanding the proposed businesses into Hong Kong and/or the Chinese market for those products or services.

On the other hand, CIE students also selected products or services originating from China or Hong Kong, such as traditional Chinese cakes, China-produced electric cars, and Sichuan spicy hot pot, and US students need to design promotional plans suitable for the US market.

This activity adopted the peer-review method. "This strategy allows students to review one another's work and provide positive and constructive feedback to facilitate improvement." (Active and Collaborative Learning | University of Maryland-Teaching and Learning Transformation Center, n.d.)

Students exchange ideas by uploading videos for their proposals.

They gave each other verbal and written feedback. The groups would then base on the feedback they received to improve and modify their marketing strategies.

The two parties voted to select the best marketing plan for the other party. CIE students voted for the best idea suggested by Hawaii students. Hawaii students also selected the best idea from the CIE students.

The HK lecturer gave students the activity requirements and guidelines for evaluation during the first two lessons. The whole activity carried out during week 3 to week 9 with video recorded for students' marketing proposals' presentations.

The UH Hilo gave students the activity requirements and guidelines for evaluation during the first week of class. The students received three guidelines for Part A, Part B, and Part C. Students selected their Hawaii-based/US product in Part A, created an introduction presentation for their product in Part B, and selected/created a marketing presentation for the Hong Kong/Chinese product they've selected.

CIE and Hawaii students provided verbal and written feedback to each other. Students modified their ideas based on the feedback and then did the final presentation (being recorded).

## **2.2 Measurement Approaches**

Guiding questions provided by HKBU (CIE) for the students included:

- Select a Hawaii originated product/service for the HK/China market (product/service suggested by Hawaii students)
- Identify the target customers for the product/services.
- Suggest marketing strategies to attract the target customer/s (students may need to adopt different strategies for different groups of customers)

There are two roles for the students. The first role is the marketer. Being trained to be marketing professionals in the future, they need to understand the characteristics of the product or service suggested by students at partner universities. They are required to design marketing strategies of products or services to fit the needs of the target market/s.

The second role for the students is the "critic."

Students also need to take up the "critic" role to comment on the ideas generated by students at partner universities and give them some constructive feedback for improvements.

As critics, students also gave some feedback about the presentation skills to the partner students. Presentation is one of the key skills for a successful marketer.

Besides feasible and creative ideas, the student must have good presentation skills to equip oneself to take up a professional marketing career in the future.

### 3. Results

Instructors distributed a simple survey for two classes after the COIL activity, and the following are the results. Students' subject competency levels were also measured pre and post-activity.

#### 3.1 Student survey results

- (1) The Internationalization activity assisted my understanding of the subject objectives.

<b>Feedback from students</b>		
<b>Strongly agree</b>	CIE students 45%	Hawaii students 35%
<b>Agree</b>	36%	48%
<b>Neutral</b>	18%	13%
<b>Disagree</b>	NIL	4%
<b>Strongly disagree</b>	NIL	NIL

Table 1.

(2) I gained insightful knowledge on my partner university, their students and culture.

Feedback from students		
<b>Strongly agree</b>	CIE students 45%	Hawaii students 18%
<b>Agree</b>	45%	48%
<b>Neutral</b>	9%	17%
<b>Disagree</b>	NIL	17%
<b>Strongly disagree</b>	NIL	NIL

Table 2.

(3) I am more comfortable now working with foreign firms or on foreign job assignment because of this activity.

Feedback from students		
<b>Strongly agree</b>	CIE students 55%	Hawaii students 9%
<b>Agree</b>	27%	44%
<b>Neutral</b>	18%	43%
<b>Disagree</b>	NIL	4%
<b>Strongly disagree</b>	NIL	NIL

Table 3.

The feedback of the students was quite positive. 81% of HK students and 83% of Hawaii students believe that the activity assisted in their understanding of the subject objectives. 90% of HK students and 66% of Hawaii students believe that the activity helps them to gain insightful knowledge of the partner university and overseas culture. Furthermore, 82% of HK students and 43% of Hawaii students believe that they are more comfortable working with foreign firms and partners after the activity.

For the positive feedback (especially question one and two), studies by Minei, Razuvaeva, Dyshko shared similar results. Students “felt excited and a bit nervous at the same time but was so happy to have an opportunity to communicate with native speakers and learn more about their ways of life, value, hopes and expectations.” “Students indicated development of cultural sensitivity. They showed personal growth in respect and recognition that cultural differences exist, as well as an ability to adapt their designs to Nigerian values.”\_(Minei, Razuvaeva, Dyshko, 2021)

Moreover, “non-monetary return of investments in COIL assessed by the teachers and students at DUT is very high (above 4, i.e., 4.1 for teachers, and 4.7 for students on the Likert’s scale 1-5), while its correlation with the independent variables in the model is also high (between 53% and 62%). This shows that teachers’ and students’ satisfaction with COIL are high, as well as the level of their positive experience, when it comes to sharing ideas and knowledge in cross-cultural environment. Both teachers and students are satisfied with the project’s outcomes (i.e., the idea of joint presentations and recordings) and they believe in continuing collaboration with partner universities within COIL or similar projects. (Bauk 2019)

For CIE students, over 80% of them believe that the activity helps them to understand more of the subject objectives/ subject contents as well as the culture in another country. They also have more confidence when working with overseas partners. It appeared that the percentage for CIE students is higher compared to Hawaii students. One of the reasons may be for CIE students, this kind of Internationalization activity is the first activity they experience (similar nature) whereas, for Hawaii students, they got similar experience beforehand so the impact for CIE students is greater.

For the third question about working with foreign firms in the future, 44% of the Hawaii students agree and 43% of Hawaii students are neutral with the statement. Other studies also share similar responses as the Hawaii survey. For example, for the studies by Vahed, Anisa, Rodriguez, Krista (2020), stated that “students were unsure or disagreed about the overall impact a COIL VEP had on their personal behavior, such as skills and knowledge they will use in the future ( $p=0.21$ ); and an experience that affected their future career ( $p=0.17$ ). “(Vahed & Rodriguez 2020)

In HK, two quizzes have been arranged for the CIE students. The first quiz was arranged in week 5 (beginning of the COIL activity). Another quiz was held during week 9 (by the end of the COIL activity). Quiz contents are coverage is different, the two quizzes need to test students’ ability to understand and grasp the keep marketing concepts.

### 3.2 Ancillary Analyses

It was noticed that the overall marks for students improve. Though there may be various reasons, it appeared that the Internationalization activity to a certain extent, helps to enhance students marketing knowledge and how to apply the theories to a real-life scenario.

QUIZ result of CIE students	Quiz result Mean	Standard deviation
Quiz ONE (before the COIL project)	8.07 (out of 10 marks)	1.07
Quiz TWO (after the COIL project)	8.6 (out of 10 marks)	1.66

Table 4.

In Hawai'i, individual assignments were conducted with students before and after the COIL project to assess individual student's understanding of marketing campaign execution and process.

INDIVIDUAL ASSIGNMENT result of UH Hilo students	Quiz result Mean	Standard deviation
Individual Assignment ONE (before the COIL project)	78 (out of 100 marks)	17.007

Table 5.

#### 4. Discussion

The activity helps to enhance the knowledge of students regarding the subject contents and application. It was an eye-opening experience and gave students some chance to interact and communicate with overseas students.

One drawback was that the students are difficult to communicate in a real-time manner (the time difference between HK/China and Hawaii is 18 hours). In the future, it will be better to arrange schedules so that students can have a live presentation in front of overseas students and have a real-time Q&A / dialogue/ communication with each there. That will further help improve students' presentation skills and enhance the communication and interaction between both parties.

Secondly, the lecturer can also revise the question so both Hawaii students and HK/China students could work together on the same project in the future. Time difference and class regulations play a huge factor in the inability of students to communicate. UH Hilo students were only able to meet during their class time, close to midnight at HKBU. Students, especially from the UH Hilo/US counterpart university, students were able to give qualitative feedback and attributed their lower ratings to expectations of communicating with HKBU students.

The third suggestion includes retrofitting the internationalization activity to an elective (instead of a compulsory course) in HKBU. It was only an elective at UH Hilo. This could lead to students choosing whether they want to enroll in the course or not. This is because not all students are comfortable with the COIL requirements and technological knowledge they need to equip before the courses. However, this could have led to lower ratings with UH Hilo students as students may have higher expectations than in the course.

Some studies also reflected similar situations.

For the studies by King (2020), the report states that "Mexican students did not choose to take the binational online course (it was mandatory). Student feedback made it very clear that the Mexico-based students were very upset about how the course was implemented into their plan of study."

Marcillo-Gómez & Desilus (2016) suggested that "the course should be a voluntary course for credit, similar to a study-abroad program so that both groups of students have a tangible gain to show on their transcript."

For the role of facilitator, Naicker, Singh & Genutgen (2021) suggested "as facilitators, the roles as the guide by the side during the collaboration became more pronounced to assist students with barriers by providing ongoing digital literacy skills support, contact with students' partners with low participation rates and weekly facilitators briefings to circumvent challenges. To ensure students with a lesson on intercultural awareness and digital literacy guidance."

The role of lecturer/facilitators can also be improved to provide students with more support to enhance the overall effectiveness of the COIL activity. Here are the final strategies for lecturers to become better facilitators:

- *Learn and create a presentation about the other university's culture. This could be a two-way communication process with the other university student discussing various cultural topics from the presentation.*
- *Have students come up with a list of questions for the partner university's students to answer. This can be done asynchronously and create a "Pen Pal" connection that could be beneficial later on in the project.*
- *Have students create audio/video presentations for both parts of the project. It was helpful that UH Hilo students introduce US products extensively and bring in marketing campaigns through video/audio presentations.*
- *Have students also create short biographies or video introductions including their name, major, interests, and future career interests.*

## **5. Conclusion**

In terms of culture, the activity widens students' horizons. For example, camper vans are quite popular in the United States and are not popular in HK. It is a common way of dining in HK/China for hot pot, but students from Hawaii University may not hear of "hot pot" before the activity. Some other cultural practices are also quite new to the foreign party. HK/China and Hawaii students reflect that the activity opens their eyes and helps them view an issue from different perspectives. On the other hand, some HK students also reflected that it is difficult to modify the strategies based on partners' feedback due to different regions.

In terms of technology, students in HK/China and Hawaii University are familiar with technology usage. The web connection is also fine for the three regions, and they did not encounter major difficulties in the technology and web connection aspects. Students used various technologies like Zoom, Google Meet, and PowerPoint in order to communicate their campaigns.

In terms of course objectives and course contents, students illustrate their creativity and suggest some feasible and interesting ideas during the activity. The author felt that it is a pleasant experience to listen to students sharing, and it also widens the horizon of lecturers, besides students.

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***Theory of Lesson Creation for Lower-grade Life Environment Studies in Japan:  
Focusing on the Narratives and Practices of Social Studies Teacher Kazumasa Arita***

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**Abstract**

This study aims to clarify the theory of creating lessons for the lower grades on "life environment studies" in Japan, with a focus on the narrative and practice of social studies teacher, Kazumasa Arita (1935–2014). In this research, the following three points are explained. First, Arita's theory of creating "life environment studies" lessons during his tenure at the Aichi University of Education was different from his social studies lesson theory while he was associated with the elementary school affiliated to Tsukuba University, and he had changed to "zest for life" as a "new view of academic ability." Second, it became clear that during his tenure at the Aichi University of Education, Arita had his idea for an annual plan of the "life environment studies" and he was working on the practice of imparting lessons on "life environment studies" with an emphasis on "questioning." Thirdly, the development of teaching materials was emphasized in the theory and practice of making life science lessons in Arita during the time of Aichi University of Education. Based on the above theoretical characteristics of lesson-making for lower-grade "life environment studies" in Japan, I think that it will give suggestions for the theory and practice of lesson-making in lower-grade education in Asia.

Keywords: Life Environment Studies, The Theory Of Creating Lessons, Kazumasa Arita

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## 1. Introduction

The purpose of this study was to clarify the theory of lesson creation for lower-grade life environment studies in Japan, focusing on the narratives and practices of the social studies teacher Kazumasa Arita (1935-2014).

In Japan, social studies is implemented as life environment studies in the lower grades of elementary schools. Following a revision to the Courses of Study, it was decided that life environment studies would be fully implemented in 1992. The trajectory of the birth of life environment studies as a new subject shows that there was a period of conception and development while the idea of social studies was applied to the lower grades of elementary schools (Yoshitomi, Tamura, 2014).

Kazumasa Arita, a representative social studies teacher in Japan, contributed to the concept and development of life environment studies. Arita's activities relating to the promotion of life environment studies are wide-ranging.

Arita's activities related to the promotion of life environment studies are detailed in a number of studies. For example Umai (2014) states that Arita "proposed the right direction based on his practice as a teacher" when life environment studies was born. Watanabe (2017) writes that Arita "created a university textbook as a single book and built the essence of life environment studies in line with the practice records at the elementary school site" in the early period of life environment studies. It has also been said, however, that the theory behind lesson creation for Arita's life environment studies has not been fully constructed. Therefore, this paper seeks to clarify the theory of lesson creation in life environment studies, focusing on Arita's narratives and practices.

## 2. Research Methods

The research methods involve organizing the narratives and practical materials related to the theory of lesson creation in life environment studies from the writings and treatises of Arita's time at Aichi University of Education.

There are three reasons for focusing on the narratives and practices of Arita's time at Aichi University of Education. The first is that, at the time, life environment studies was in its early stages and Arita had many opportunities to discuss life environment studies lessons by writing about it in relation to lower-grade social studies. The second is that, at the time, Arita was working energetically on the practice of training life environment studies teachers at Aichi University of Education. The third is that, at the time, Arita was involved in the practice of in-service training for life environment studies teachers at Aichi University of Education and had great influence on local life environment studies teachers. For the above reasons, Arita's Aichi University of Education era can be regarded as the time when he worked most vigorously on the conception and development of life environment studies as a social studies teacher.

Table 1: Major Works by Kazumasa Arita During His Time at Aichi University of Education

year	Main book	Life environment studies-related chronology
1992	<b>"Arita-style teaching plan and lesson material" eight volumes, three separate volumes, Meiji Tosho</b>	First year of the full-scale implementation of life environment studies.
1993	<b>"Learning skills that you want to develop in the second grade" Meiji Tosho</b> <b>"Learning skills you want to develop in the first grade" Meiji Tosho</b>	Second year of the full-scale implementation of life environment studies.
1994	<b>"Textbook for creating life environment studies lessons seen in photos" Meiji Tosho</b>	Third year of the full-scale implementation of life environment studies.
1995	"Creating a lesson to raise 'Research Demons'" Meiji Tosho "Q & A tips for teachers who raise children" Meiji Tosho	Fourth year of the full-scale implementation of life environment studies.
1996	<b>"New academic abilities through life environment studies " Meiji Tosho</b>	Fifth year of the full-scale implementation of life environment studies.
1997	<b>"Ability and responsibility of first grade's homeroom teacher" Meiji Tosho</b> <b>"Ideas for life environment studies and teaching material development" Meiji Tosho</b> <b>"Basics of Life Environment Studies Lesson Creation" Meiji Tosho</b> "Basics of creating lessons for children to live in" Meiji Tosho "Techniques for creating lessons for children to live in" Kyoiku Shuppan <b>"Techniques for creating life environment studies lessons" Educational publication</b>	Sixth year of the full-scale implementation of life environment studies.
1998	"Methods to catch children with 'head chart'" Meiji Tosho	Seventh year of the full-scale implementation of life environment studies. Notification to the Courses of Study.
1999	"Achievement and learning skills in the 21st century" Meiji Tosho <b>"From life environment studies to comprehensive learning" Meiji Tosho</b> "Technology for creating new lessons" Meiji Tosho "Teacher's purpose of life and how to learn" Meiji Tosho	Eighth year of the full-scale implementation of life environment studies. Comprehensive study begins in stages from 2000.

(Bold text relates to life environment studies; created by the author)

### 3. Theory Lesson Creation for Life Environment Studies During Arita’s Time at Aichi University of Education

Arita wrote about excellent lower-grade social studies lesson practices, such as "creating a poster" and "driving a bus," when he was a teacher at Tsukuba University Elementary School (1976-1992), before he worked at Aichi University of Education. However, when Arita was at Aichi University of Education, he rarely talked about these practices as lesson practices for life environment studies. This is because Arita regarded life environment studies as different from lower-grade social studies. At that time, Arita talked about the practice of “creating a poster” as follows:

In second grade social studies, the unit of "creating a poster" is quite interesting and many good practices are undertaken. It seems that the practice of creating a poster with a piece of paper and making children aware that "there are many things that the poster does not understand" has been retested by many people and is still being practiced. By creating a poster, many "Hatena?" were drawn out, and we were forced to notice the "unknown" and investigate. No, the child will do it that way. Children will deepen the content and method of pursuing the secrets of the poster while learning. I have experienced that there is nothing more interesting than teaching. However, with the advent of life environment studies, there is concern that it will not be possible to raise children to pursue this.

(Kazumasa Arita (1994) "Textbook for creating life environment studies lessons in photographs" Meiji Tosho, p.190)

In this way, Arita seems to have regarded the practice of "creating a poster" in lower-grade social studies as different from the practice of life environment studies.

This also appears in Arita's views of the subjects. Arita’s views of life environment studies and social studies are shown in Figure 1.

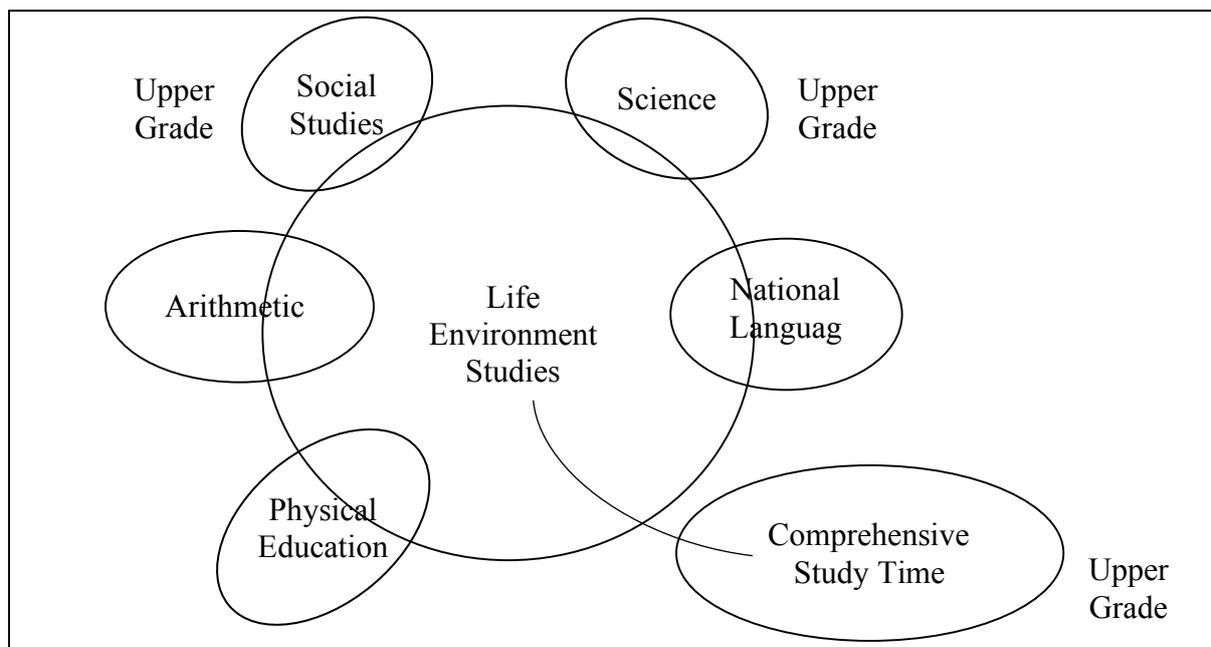


Figure 1. Relationship Between Social Studies and Life Environment Studies (Arita, 1997, p.132)

As shown in Figure 1, Arita positioned the lower grades of elementary school life environment studies as something different from social studies and seemed to regard it as being close to the "time for comprehensive study" in the upper grades of elementary school.

In addition, Arita thought about the ability to raise children in life environment studies as follows:

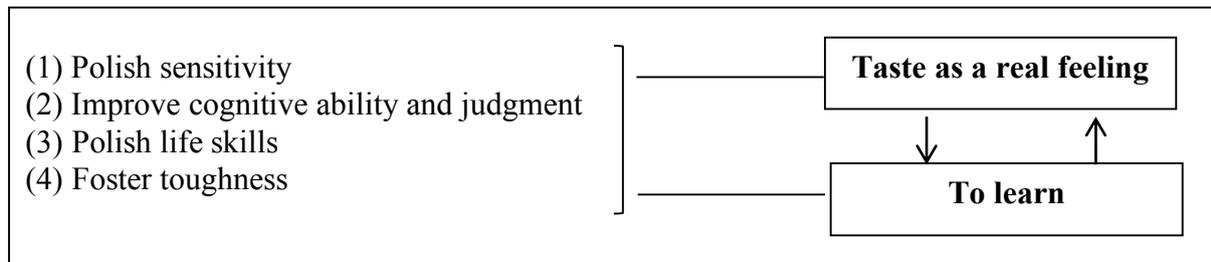


Figure 2. "New Academic Ability" Nurtured in Life Environment Studies (Arita, 1996, P.15)

As shown in Figure 2, abilities such as "Polish sensitivity," "Improve cognitive ability and judgment," "Polish life skills," and "Foster toughness" are "producing knowledge" from a practical standpoint. "Power" and "Social recognition, nature recognition, and self-recognition, which are the purposes of life environment studies," do not serve as the basis of the ability to produce new knowledge by oneself in response to changes in society. In other words, the power to produce knowledge is the power to learn, the power to keep asking questions, and the power to live. In "life environment studies, giving knowledge, we should abandon it and devote ourselves to developing academic ability" (Arita, 1996, pp.26-27).

As shown in Figure 3, Arita grasped the abilities that should be nurtured in life environment studies in line with the "skill for living" as the "new academic ability."

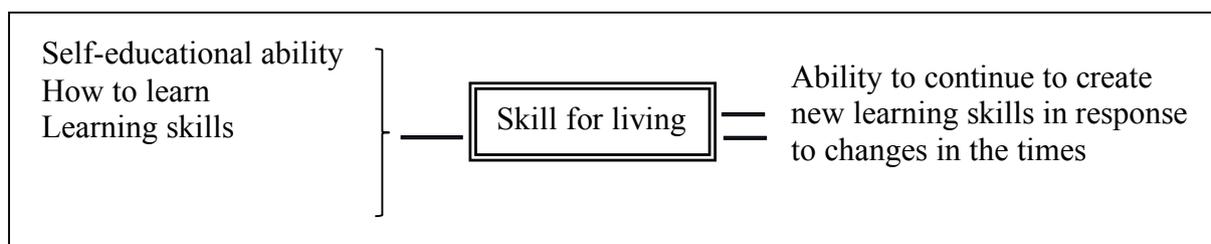


Figure 3. New Academic Ability (Arita, 1997, P.51)

From Figure 3, it can be seen that Arita focused on problem-based learning as the "skill for living" as a "new academic ability."

Based on this view of "new academic ability" centered on problem-based learning, Arita considered the lesson concept of life environment studies as follows.

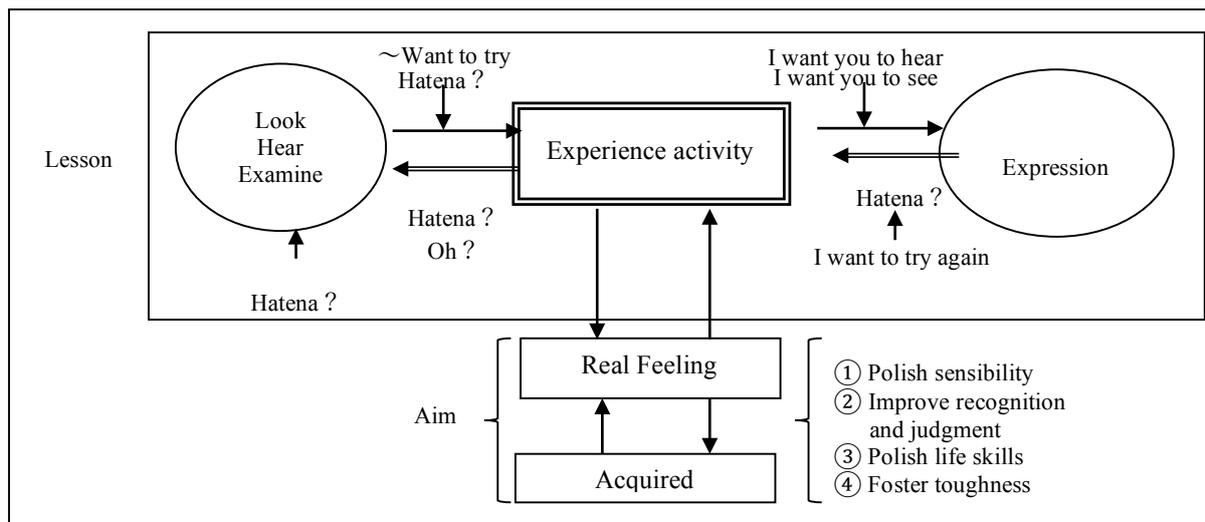


Figure 4: Life Environment Studies Lesson Concept (Arita, 1994, P.11)

Figure 4 shows children's awareness of the problem of "Hatena?" Accompanying hands-on activities were valued and they engaged in learning activities and expression activities, such as seeing, listening, and investigating. Therefore, Arita planned life environment studies lessons from the standpoint of emphasizing children's awareness of problems.

#### 4. Practice of Lesson Creation for Life Environment Studies During Arita's Time at Aichi University of Education

##### a. Arita's Annual Life Environment Studies Plan

Arita had worked on the practice of life environment studies lessons by independently planning an annual guidance plan for life environment studies since his time as a teacher at Tsukuba University Elementary School before he was assigned to Aichi University of Education.

Table 2: Arita's Annual Plan for First Grade Elementary School and Life Environment Studies (1988 Version)

<p>1 Let's do Akushu                  * The children naturally expanded lessons with senior students in the neighborhood and developed into grass, trees, insects, etc.                  2 Let's provoke Asagao                  * I have been observing since 5/17, narrowing down and creating interesting works.                  3 School's return                  * Pursuing the fun and danger of Michikusa. I came to enjoy going to and from school.                  4 Summer play                  * Added Tanabata Festival.                  5 Let's play with autumn insects                  * We bred snails, crickets, grasshoppers, etc. and created a playground for them to play</p>	<p>6 Let's look for "autumn"                  * Let's go to the autumn park to look for autumn                  * Let's create using leaves and nuts                  7 My Kazoku                  * The content aimed to pursue the theme "What is a family?"                  * Developed from "Kazoku no Tokucho (including play)", "My work" to "Kazoku no work"                  8 Let's play with "winter"                  * Deepen contact by learning how to play with parents, grandfathers, and grandmothers as children.                  9 My year                  * "What I can do"</p>
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in. We also held an "insect concert".	* Summarize "my growth" in a story-like manner in essays, picture-story shows, cards, picture books, etc.
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(Created by the author from Arita, 1994, p.244)

In this way, it becomes clear that Arita's annual guidance plan for life environment studies had characteristics, such as a pursuit-type annual guidance plan that values children's awareness of problems.

**b. Arita's Annual Life Environment Studies Lesson Practice**

In addition, the "Snail and Play" lesson is a typical example of one of Arita's life environment studies lessons during his time at Aichi University of Education. In particular, the proposal lesson given to first-year students at Okazaki Elementary School, attached to Aichi University of Education, at the Sixth National Convention of the Japan Society for Life Environment Studies Education (Aichi Convention) on June 21, 1997, attracted national attention. The outline of the learning activities is presented below.

Table 3. Lesson Practice of "Snail and Play" in the First-Grade Life Environment Studies

Learning activities	Points to keep in mind for guidance
<p>1. What do you know about snails?</p> <p>2. I have drawn a picture of a snail. Are you good at it? Is something wrong?</p> <ul style="list-style-type: none"> <li>• No tail (short legs)</li> <li>• No vortex ... Right-handed or left-handed</li> <li>• Lack of tactile sensation ... how many?</li> <li>• No eyes ... How good is your eyesight?</li> <li>• No mouth ... How many teeth do you have?</li> <li>• It's not colored ... Sometimes it's red</li> <li>• There is no pattern ... Sometimes there is no pattern</li> </ul> <p>&lt;↑ Yusaburi&gt;</p> <p>3. Please tell me what snails can do.</p> <ul style="list-style-type: none"> <li>• Can be connected</li> <li>• You can walk on bamboo sticks</li> <li>• You can walk on the blade of a knife</li> <li>• You can climb trees</li> </ul>	<ul style="list-style-type: none"> <li>○ Be confident that you know about snails!</li> <li>○ It may also be said that you can be a snail. At that time, let me do it.</li> <li>○ While looking at the real snail, you should point out something strange. There should be new discoveries in this review.</li> <li>○ Ask questions about deficiencies in your perspective and let them discover "Hatena?" If you cannot answer or have a conflict of opinions, leave it as "Hatena?"</li> <li>○ This is a question for asking how much you play with snails. In other words, it asks about the experience so far. When you don't understand, proceed while asking questions and leave it as "Hatena?"</li> <li>○ "Let's find out" - and so on.</li> </ul>

<ul style="list-style-type: none"> <li>• Climb the glass plate ? ?</li> <li>• Can you swim ? ?</li> <li>• Can you jump or foot race ? ?</li> </ul>	
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(Created by the author from Arita, 1997, p.108)

Here, the "question" is emphasized in the lesson. Specifically, it is a question that puts "Yusaburi" into children's thoughts, such as "Which way does a whirlpool spin?", "Do snails have eyes?", and "Can you walk on gum tape?" Arita, at that time, said about "questions" that: "The questions that have been raised recently are for children to come up with the contents of the teaching materials on their own and to pursue them and make them their own.

I was thinking, it can be said that such a view of 'questioning' is rooted in the way of life environment studies lessons," as shown in Figure 5.

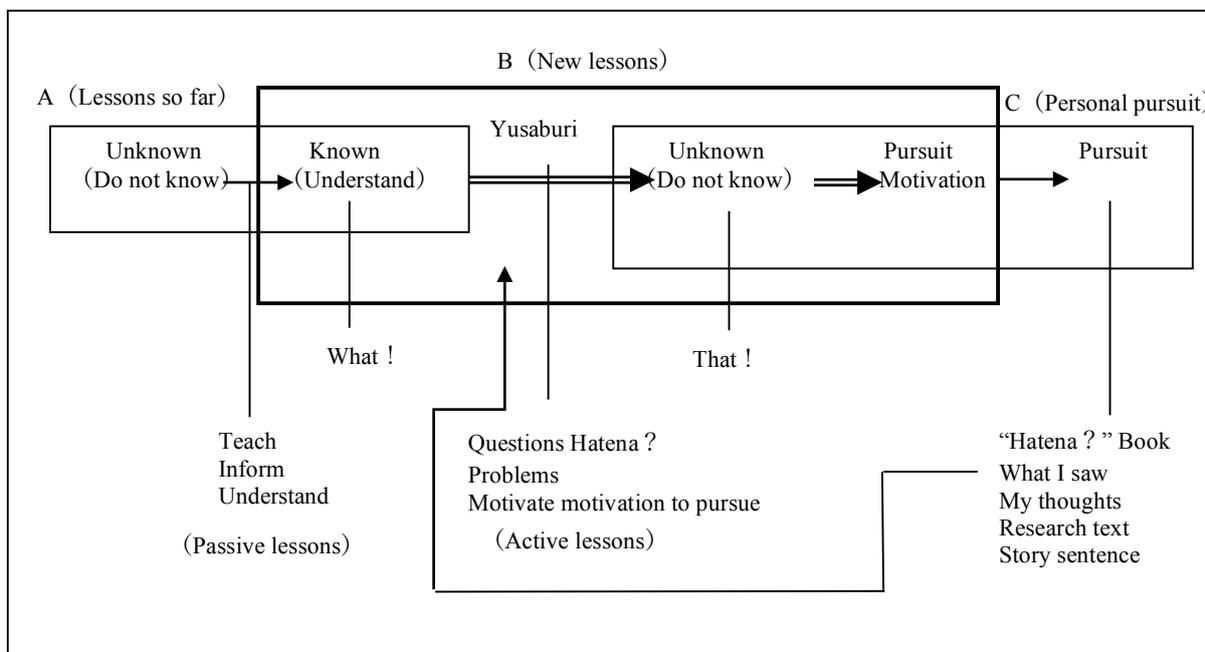


Figure 5. Life Environment Studies Lesson Practice (Arita, 1994, p.12)

From Figure 5, it can be seen that Arita focused on finding "Hatena?" In addition, he worked on life environment studies lessons. In other words, Arita aimed to change his perspective from "known" (understood) to "unknown" (unknown) through "questioning" in the life environment studies lessons.

### 5. Relationship between Arita's Life Environment Studies Lesson Planning and Teaching Material Development

Before Aichi University of Education, Arita had been working on the development of social studies teaching materials with an emphasis on "material teaching materials." Regarding the development of teaching materials for social studies, Arita stated that it is important for each child to create and organize teaching materials that are enthusiastically pursued with urgent problems. In the same way, the development of teaching materials for life environment studies was conceived to center on "material teaching materials." In addition, Arita showed

the ideal way of studying teaching materials in life environment studies, as shown in Figure 6.

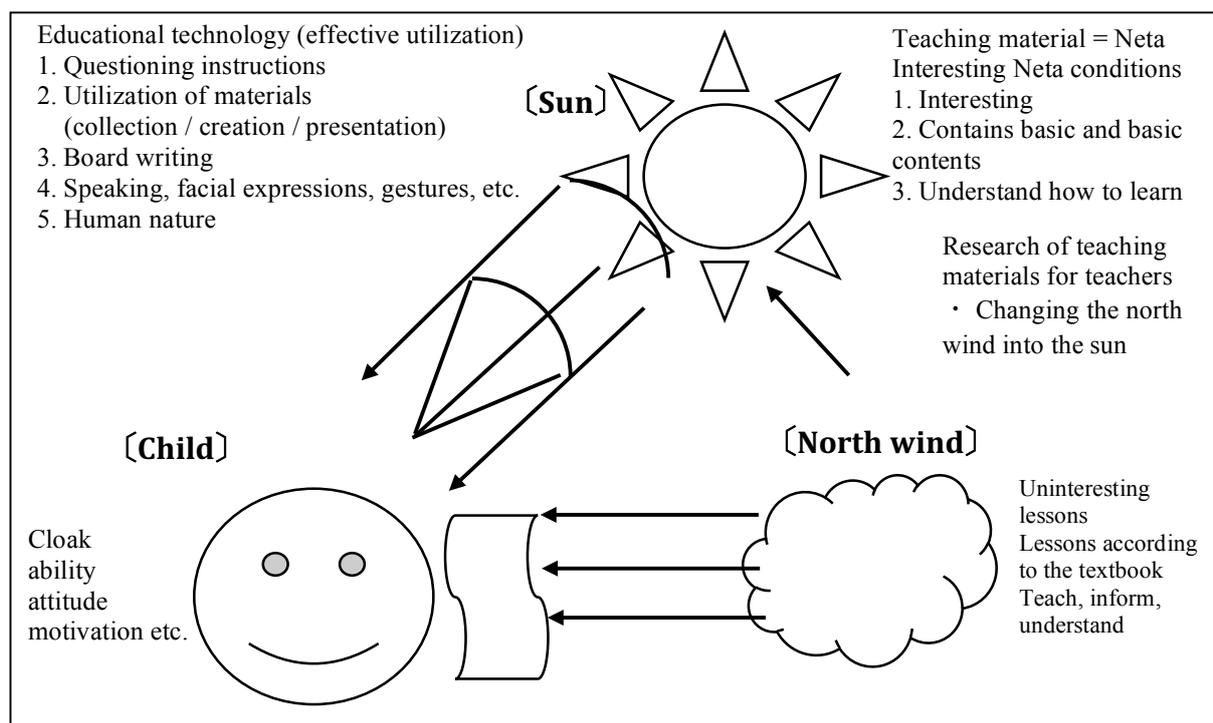


Figure 6: Research of Teaching Materials for Life Environment Studies (Arita, 1989, p.15)

Shown here is the importance of teaching material development in the research of teaching materials in life environment studies. Arita talked about the importance of developing teaching materials. In lessons that are not as interesting, as the north wind, children do not take cloaks, but by developing teaching materials with interesting material conditions, such as the sun, children take cloaks. This is said to develop abilities, attitudes, and motivation. Arita said, "Even in the life environment studies lesson, it is important to develop teaching materials (materials), in order for children to say 'It looks interesting. I want to do more.' It depends on the development of this teaching material whether or not it can be done."

Ikeno (2009) regards Arita's approach to developing teaching materials as "creating teaching materials from below," from the perspective of children's awareness of teaching materials. In addition, Seki (2009) positions it as "lesson composition theory by utilizing cognitively promoted teaching materials." In other words, it becomes clear that the development of teaching materials was emphasized in the theory of lesson creation in Arita's life environment studies during his time at Aichi University of Education.

## Conclusion

The purpose of this study was to clarify the theory of lesson creation in the lower grades of life environment studies in Japan, focusing on the narratives and practices of the social studies teacher Kazumasa Arita. In this study, the following three points were clarified:

First, Arita's theory of creating life environment studies lessons during his time at Aichi University of Education was different from his social studies lesson theory when he taught at an elementary school attached to Tsukuba University, and he turned "zest for life" into a

"new view of academic ability." Based on this, it had the characteristic of envisioning a life environment studies lesson. Specifically, Arita was able to clarify that he had envisioned a problem-solving life environment studies lesson that emphasized the child's awareness of the problem, "Hatena?"

Second, it became clear that during his time at Aichi University of Education, Arita had his own idea of an annual plan for life environment studies and was working on the practice of life environment studies lessons with an emphasis on "questioning." Specifically, Arita created an annual plan based on a pursuit by children and, in the first-grade lesson practices, the life course "Snail and Play" and from "known" (understood) to "unknown." It became clear that he was asking "questions" aimed at changing his perspective to something (I don't know).

Third, the development of teaching materials was emphasized in the theory and practice of making life science lessons during Arita's time at Aichi University of Education. Specifically, Arita once envisioned the development of teaching materials for life environment studies, focusing on "material teaching materials" that would make children "looks interesting. I want to do more."

Based on the above theoretical characteristics of lesson creation for lower-grade life environment studies in Japan, we believe that it provides suggestions for the theory and practice of lesson creation in lower-grade education across Asia. Specifically, the importance of envisioning a lesson that emphasizes the child's awareness of the problem of "Hatena?", the need to practice the lesson with an emphasis on "questioning," and "looks interesting" to the children when creating the lesson. The importance of "development of teaching materials" that make people want to do more is raised.

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***The Development of an Inquiry-based Field Trip Activity to Promote Students' Positive Perceptions of the Educational Curriculum Course***

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**Abstract**

An inquiry-based field trip activity was designed for graduate students in the science education program to enhance their understanding of the school curriculum as well as to promote positive perceptions of the Educational Curriculum course. The course focuses on basic knowledge about the school curriculum and how to develop it. Four secondary schools with distinguished curricula were chosen as models for school visits. The learning activity consisted of three phases. In the preparation phase, students were asked to develop questions about the curriculum based on the schools that were visited. In the exploration phase, students were guided by the questions to gather information from each school visit. Finally, each group of students conducted two presentations in the presentation phase, consisting of a comparative study of each school curriculum and the development of a school curriculum based on desired goals and visions. After completing the course, a Likert-scale type questionnaire was applied to investigate students' perceptions of their understanding and the learning activities. In terms of understanding, students perceived that they understood the school curriculum at a high level, especially applying knowledge from the field trips to develop a new curriculum. In terms of learning activities, not only did students show a moderately positive perception towards each phase of the learning activities, but they also showed a highly positive perception towards the course. Thus, the developed activity could be utilized as a model for developing an effective school field trip for a teacher-training program.

Keywords: Inquiry-Based Learning, Field Trip, Educational Curriculum, Teacher Education

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## Introduction

The Master of Science Education program at King Mongkut's University of Technology Thonburi, Thailand aims to produce a new generation of science and mathematics teachers equipped with a fruitful and in-depth understanding of content knowledge as well as good teacher spirit. Students with a bachelor's degree in science or engineering have been the target group for applying to the program. The program structure is divided into two years of full-time study. In the first year, students with no background in the educational field are provided with basic knowledge of education, including educational philosophy, school curriculum, measurement and evaluation, educational psychology, innovation in education, research in science education, etc. In the second year, students will practice and gain teaching experience as pre-service teachers in schools, followed by conducting a thesis. The time of graduation can be extended based on students' progression of the thesis.

Educational Philosophy and Curriculum is taught in the first semester for first-year students. The course aims to provide students with understanding of educational philosophy, as well as how the school curriculum can be developed and implemented. The course content is divided into two main areas: educational philosophy and educational curriculum. There are three learning outcomes, particularly the educational curriculum aspect that includes 1) students will be able to explain curriculum theories and principles for effective curriculum design, 2) students will be able to analyze and evaluate a school curriculum, and 3) students will be able to create or develop science and mathematics curricula for high school.

In the previous course, lecture-based learning was the main pedagogy for teaching the curriculum content. Based on the nature of the content, however, the pedagogy can be developed by enriching students' experience of how a curriculum can be created and developed in real school settings. The pedagogy that can be applied is experiential learning, which is a method that instructors use to provide students' experiences from different situations and allows students to discover and reflect on those experiences based on the learning outcomes (Association for Experiential Education, 2020, <https://www.aee.org/what-is-ee>). Teaching that focuses on the learning experience of learners with the learning style and learning space of the learner is used in higher education in a variety of fields to increase the effectiveness of teaching and encourage students to learn (Kolb & Kolb, 2017).

Field trips or out-of-school visits is one of the teaching methods that focus on providing students with off-site learning experience. Some research has shown that the field trips can engage students' learning, improve their social skills, promote 21<sup>st</sup>-century skills, and provide more understanding in addition to the in-class content (Behrendt & Franklin, 2014; Coll & Coll, 2018; DeWitt & Storksdieck, 2008; Larsen, Walsh, Almond, & Myers, 2017; Lavie Alon & Tal, 2015). To manage an effective field trip learning activity, teachers play a key role in a well-organized connection between out-of-school visit experience with the desired course-learning outcome that requires different techniques and methods compared to regular classroom learning, which can be a very challenging task for teachers (Behrendt & Franklin, 2014; Rebar & Enochs, 2010).

Inquiry-based learning is a pedagogy that focuses on students' understanding of how knowledge can be acquired through the acquisition process. According to the National Research Council (2000), inquiry-based learning consists of five key steps: 1) students are engaged by questions, 2) students acquire evidence, 3) students formulate explanations from the evidence, 4) students evaluate their explanations, and 5) students communicate their

proposed explanations. In higher education, inquiry-based learning can be used in different forms such as problem-based learning, project-based learning, case-based teaching, etc. (Aditomo, Goodyear, Bliuc, & Ellis, 2013). However, research has indicated that if instructors can design learning activities as an open inquiry by compelling students to formulate their questions and seek answers by themselves, it would promote better research skills than structured inquiry, in which teachers prepare the questions and methods of finding answers for students to follow (Spronken-Smith & Walker, 2010).

According to the importance of experiential and inquiry-based learning, the Philosophy and Educational Curriculum course, particularly the educational curriculum content, was redesigned to be an inquiry-based field trip learning activity, as shown in the research framework (see Figure 1). The activity aims to enhance students' understanding of the school curriculum and to promote positive perceptions or satisfaction with the course. The details of inquiry-based field trip activity and the effectiveness of the activity on students' perceptions are presented in this paper.

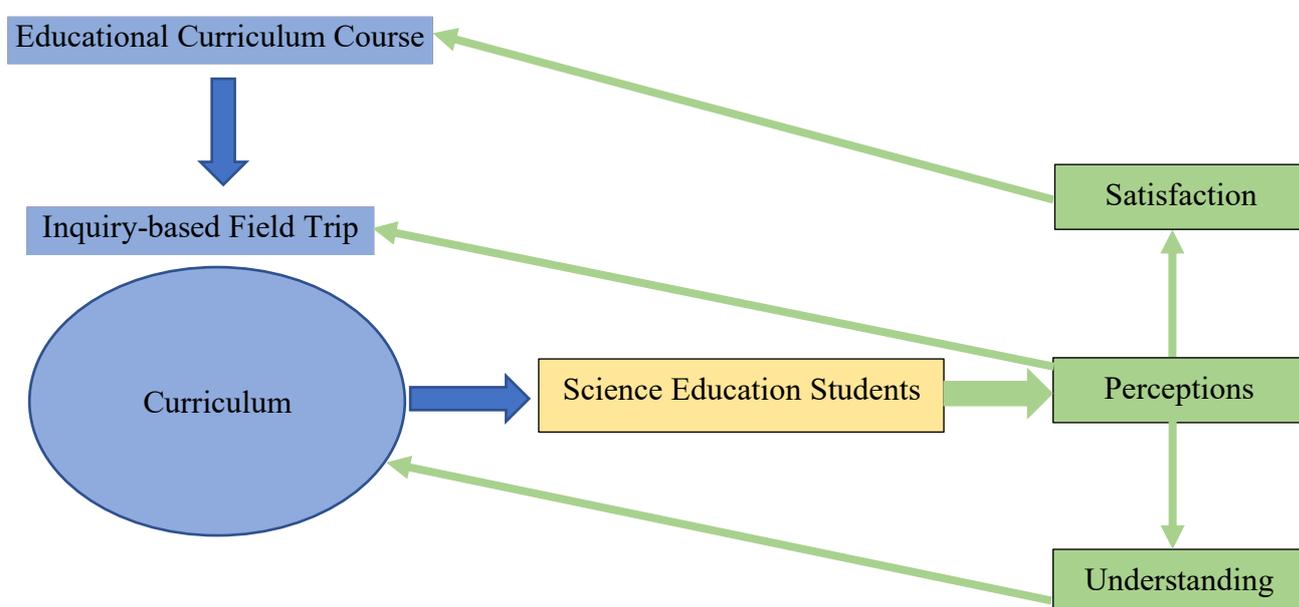


Figure 1: Research Framework

### Description and Implementation of the Inquiry-Based Field Trip Activity

In this study, the inquiry-based field trip activity was developed in the Philosophy and Educational Curriculum course. The learning activity was implemented for 12 graduate students in the Science Education program. Four secondary schools in Thailand having distinguished curricula, such as an English program, advanced science and mathematics program, and competency-based program were chosen as models for school visits.

The learning activity was organized into three phases including the preparation phase, exploration phase, and presentation phase (see Table 1). In the preparation phase, students were asked to develop questions about the curriculum based on the schools that were visited. In the exploration phase, students were guided by the questions to gather information from

each school visit. Finally, in the presentation phase, each group of students conducted two presentations consisting of a comparative study of each school curriculum and the development of a school curriculum based on desired goals and visions.

Table 1: Three Phases of the Inquiry-Based Field Trip Activity

Phase	Inquiry-based Field-Trip Activity
Preparation	<ol style="list-style-type: none"> <li>1. Students were asked to form a group of six persons.</li> <li>2. The teacher engaged students in searching for preliminary information about the curriculum of the school field trip on the internet.</li> <li>3. The teacher encouraged students to formulate up to 10 questions about the school curriculum and submit them to the teacher before each school visit.</li> </ol>
Exploration	<ol style="list-style-type: none"> <li>1. A group of teachers and students visited the schools to observe the school environment and join a presentation about the curriculum organized by the school team.</li> <li>2. While visiting, each group of students collected information to answer the questions. If there were questions that arose while participating, students were encouraged to ask extended questions.</li> <li>3. After a field trip, if there were questions that had not been answered yet or were unclear, students were allowed to search for more information from other sources.</li> </ol>
Presentation	<ol style="list-style-type: none"> <li>1. In the first presentation, each group of students presented the results according to the prepared questions.</li> <li>2. The teacher encouraged students to discuss the principles and concepts of the school curriculum, as well as to assess the strengths and weaknesses of each school curriculum.</li> <li>3. Then, the teacher allowed students to utilize the information from the field trip to create or develop a science and mathematics curriculum for their dream school in the second presentation.</li> </ol>

## Research Method

This study aims to answer the research questions below:

1. Can the designed inquiry-based field trip activity promote positive perceptions among students concerning the educational curriculum course?
2. What are students' perceptions of the designed inquiry-based field trip activity?

After completing the learning activity, the students' perceptions of the designed inquiry-based field trips activity were evaluated using a questionnaire. The purpose of the questionnaire was to evaluate students' perceptions through three main constructs: 1) Perceptions of the course learning outcomes achievement (items 1-4), 2) perceptions of the developed inquiry-based field trip activity (items 5-16), and 3) perceptions of the learning activity in general (items 17-21) (see Table 2). Students were asked how they perceived each statement on the questionnaire using a five-point Likert scale, with 1 being strongly disagree and 5 being strongly agree. The results from this section were analyzed and interpreted using the following criteria: Highly negative (1.00-1.50); moderately negative (1.51-2.50); neutral (2.51-3.50); moderately positive (3.51-4.50); and highly positive (4.51-5.00) (Duangpummet, Chaiyen, & Chenprakhon, 2019), as shown in Table 2.

## Findings

The findings are reported in three parts according to the three constructs of the questionnaire. The first and the third constructs of the questionnaire aim to answer the first research questions, and the second construct aims to answer the second research question. Data were collected from 10 out of 12 students because there were two students who did not complete the questionnaire.

In the first construct of the questionnaire (see Table 2), the students' perceptions toward the course learning outcomes achievement were moderately positive, with a mean score of  $4.23 \pm 0.62$ . The most positive student perceptions regarded students can establish or develop science and mathematics curricula for high schools, with a mean score of  $4.50 \pm 0.53$ . Meanwhile, the students least positively perceived on making a comparative study of strengths and weaknesses of each school curriculum, with a mean score of  $3.90 \pm 0.88$ .

In the third construct of the questionnaire (see Table 2), the mean score of students' satisfaction towards the course learning activity was highly positive at  $4.60 \pm 0.52$ . Particularly, students highly perceived that the inquiry-based field trips activity not only provided their understanding about school curriculum, but they also learned other professional teaching aspects from the activity, with a mean score of  $4.60 \pm 0.52$ . The reason may arise from students' participation in the field trip; they not only were provided curriculum content from a school team, but also had a chance to observe the classroom atmosphere and interact with an in-service teacher, which could provide better understanding about a teacher's role. The students agreed that they enjoyed the school field trip and the activity boosted their desire to become a teacher at a moderately positive level, with a mean score of  $4.50 \pm 0.53$  and  $4.00 \pm 0.82$ , respectively. Finally, students agreed that the inquiry-based field trip was an effective pedagogy to teach the educational curriculum content at a moderately positive level, with a mean score of  $4.50 \pm 0.71$ .

For answering the second research question, the second construct of the questionnaire was analyzed for the in-depth understanding of students' perceptions toward the learning activity in each phase (see Table 2). The learning activity consisted of three phases including preparation, exploration, and presentation. In the preparation phase, the mean score of students' responses to the learning activity was moderately positive at  $3.96 \pm 0.75$ . Students agreed that they were encouraged to do preliminary study from the internet for preparing questions before the field trips with the highest mean score at  $4.20 \pm 0.63$ . However, planning to find the answers systematically was responded at the lowest mean score at  $3.70 \pm 0.95$ . In the exploration phase, the mean score of students' responses to the learning activity was moderately positive, at  $3.95 \pm 0.81$ . Students agreed that they were encouraged to find more information if they had not been provided with a clear answer from the field trips yet with the highest mean score at  $4.20 \pm 0.79$ . Nonetheless, questioning helped them learn better about school curriculum and they responded with the lowest mean score at  $3.70 \pm 0.67$ . Finally, in the presentation phase, the mean score of students' responses to the learning activity compared with the other two aspects was the highest at  $4.23 \pm 0.57$ , but still at a moderately positive level. Students agreed that the presentation activity provided them the opportunity to work as a team to develop a new curriculum and prepare for a presentation, which helped them gain more understanding about curriculum content.

Table 2: Results from the Questionnaire

Items		Mean $\pm$ SD
<b>1) Perceptions of achievement of the course learning outcomes (Items 1-4)</b>		
1.	I can utilize the knowledge gained on a field trip to explain the meaning of the curriculum.	4.10 $\pm$ 0.32
2.	I can utilize the knowledge gained on a field trip to explain how a curriculum can be ideated and constructed.	4.40 $\pm$ 0.52
3.	I can evaluate the strengths and weaknesses of each school's curriculum on field trips.	3.90 $\pm$ 0.88
4.	I can apply the knowledge gained from field trips to create and develop science or mathematics curricula for secondary schools.	4.50 $\pm$ 0.53
<b>Overall</b>		<b>4.23 <math>\pm</math> 0.62</b>
<b>2) Perceptions of the developed inquiry-based field trips activity (Items 5-16)</b>		
<b>2.1 Preparation phase</b>		
5.	I prepared questions with a group of friends for the field trip.	4.10 $\pm$ 0.57
6.	My group searched for preliminary information for preparing questions for a field trip.	4.20 $\pm$ 0.63
7.	My group planned to find the answers to the prepared questions systematically.	3.70 $\pm$ 0.95
8.	My group assigned an individual the duty to collect information from field trips.	3.90 $\pm$ 0.74
9.	At the end of a school trip, my group revised questions for subsequent schools to be more effective.	3.90 $\pm$ 0.88
<b>Overall</b>		<b>3.96 <math>\pm</math> 0.75</b>
<b>2.2 Exploration phase</b>		
10.	Preparing questions before going on a field trip helped me to learn purposefully about each school's curriculum.	4.00 $\pm$ 1.05
11.	Formulating questions before a field trip helped me learn more about each school's curriculum.	3.70 $\pm$ 0.67
12.	I was enthusiastic to find the answers to the prepared questions.	3.90 $\pm$ 0.74
13.	If there were still questions that had not been answered yet or were unclear at the end of a school trip, my group sought answers from other sources.	4.20 $\pm$ 0.79
<b>Overall</b>		<b>3.95 <math>\pm</math> 0.81</b>
<b>2.3 Presentation phase</b>		
14.	The presentation activity helped me gain more understanding of the curriculum.	4.30 $\pm$ 0.48
15.	Using information from the field trips to create or develop a curriculum for presentation helped boost my understanding about the curriculum.	4.30 $\pm$ 0.63
16.	Working in a team to create and present a curriculum helped me learn more about the curriculum.	4.20 $\pm$ 0.63
<b>Overall</b>		<b>4.23 <math>\pm</math> 0.57</b>
<b>3) Perceptions of the learning activity in general (Items 17-21)</b>		
17.	The inquiry-based field trip activity is an effective pedagogy for teaching curriculum content.	4.50 $\pm$ 0.71
18.	I enjoyed the school field trip.	4.50 $\pm$ 0.53
19.	The inquiry-based field trip activity helped me understand other professional aspects of teaching in addition to the curriculum content.	4.60 $\pm$ 0.52
20.	The inquiry-based field trip activity increased my desire to become a teacher.	4.00 $\pm$ 0.82
21.	I have an enhanced level of satisfaction with learning educational curriculum content through the inquiry-based field trip activity.	4.60 $\pm$ 0.52

According to the first and third constructs of the questionnaire, not only did students show a highly positive perception towards the course, but they also showed moderately positive perception towards the achievement of learning outcomes. Therefore, the designed inquiry-based field trip activity can promote positive perceptions among students concerning the educational curriculum course. However, evaluating the strengths and weaknesses of each school's curriculum on field trips is a learning outcome that needs to be emphasized more in the next implementation. According to the second construct of the questionnaire, the students showed a moderately positive perception towards each phase of the learning activities. This can indicate that the implemented learning activity is effective. However, some aspects need

to be improved further, such as preparing students to collect data from field trips systematically and training them to formulate good questions for school visits. In summary, not only do students gain better understanding of the curriculum content through the learning activity, but the activity also visualizes how an inquiry can be managed in practice through the learning experience that could allow them to apply the method for designing science and mathematics teaching in the future (Cianciolo, Flory, & Atwell, 2006).

### **Conclusion and Implications**

In this study, the inquiry-based field trip activity was designed for twelve graduate students in the science education program to enhance their understanding of the school curriculum, as well as to promote positive perceptions of the Educational Curriculum course. The field trip learning activity comprised three phases including preparation, exploration, and presentation based on the inquiry-based framework. After completing the learning activity, a questionnaire was used to investigate students' perceptions of the learning activity in three aspects: 1) perceptions of achievement of the course learning outcomes, 2) perceptions of the developed inquiry-based field trip activity, and 3) perceptions of the learning activity in general. In terms of understanding, the results showed that the students' perceptions toward the achievement of the course learning outcomes were moderately positive, especially applying knowledge from the field trip to develop a new curriculum. In terms of the learning activity, not only did students show a moderately positive perception towards each phase of the learning activity, but also showed a highly positive perception towards the course. The results indicated the designed inquiry-based field trip activity could promote positive perceptions among students concerning the Educational Curriculum course. Thus, the developed activity could be utilized as a model for developing effective school field trips in teacher training programs.

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***Metacognitive Awareness, Motivational Beliefs and Mathematics Performance of Junior High School Students: An Investigation of Mediating Effects***

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**Abstract**

Metacognition and motivational beliefs are crucial components of self-regulated learning. Effective learners are expected to exhibit the ability to plan, evaluate, regulate, and control their attitudes and behaviors during the learning process. Thus, this study investigated whether students' motivational beliefs significantly mediate the relationship between students' metacognitive awareness and mathematics performance. The study was conducted on 146 junior high school students. Quantitative data were obtained using online survey questionnaires on metacognition, motivational beliefs, and achievement test on mathematics. The study utilized descriptive correlational research, and the mediating effects were investigated using a set of regression analyses. Results showed that the respondents have above average metacognition in terms of metacognitive knowledge ( $M=3.80$ ,  $SD = 0.38$ ) and metacognitive regulation ( $M=3.79$ ,  $SD = 0.36$ ). Students' motivational beliefs components were described as above-average except for the test anxiety. Students also showed very good performance in Mathematics. Furthermore, correlation analysis showed that metacognitive awareness ( $r=0.369$ ,  $p<0.01$ ) and extrinsic goal orientation ( $r=0.326$ ,  $p<0.01$ ) were highly significant with respondents' mathematics performance. Regression analysis also revealed evidence of the partial mediation effect of extrinsic goal orientation between metacognitive awareness and mathematics performance. These findings indicates that external goal orientation plays an important role in metacognitive awareness and mathematics performance. Extrinsic goal orientation causes changes in both metacognition and mathematics performance. The results also emphasize that educators should consider the motivational beliefs and metacognition of students in mathematics.

Keywords: Metacognition, Motivation, Mathematics Performance, Mediation

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## Introduction

Throughout the years, Mathematics has always been perceived as one of the most challenging courses. Researchers assume that it is imperative to establish the factors that influence students' attitudes towards learning mathematics, what promotes learning mathematics, and what hinders the process of learning mathematics. Braza and Supapo (2014) states that one of the problems that can inhibit student mastery of math concepts and skills is the lack of mastery of basic concepts, skills, and procedures. This would be alarming in the K to 12 Curriculum, in which Mathematics lessons are arranged in the spiral matter. Failure to understand the basic concepts might probably bring difficulty in learning higher mathematics. Teaching instructions and practices have also been the factors that educators have been studying as it also affects learning. However, Kleden (2015) argues that students' academic success is determined when they can self-evaluate and comprehend their cognitive abilities. These outcomes are highly variable. Therefore, it is imperative to explore the cognitive and affective attributes that impact the learning process.

In recent years, the success of Filipino students in mathematics subjects has prompted concern. The low performance and decreasing literacy rate of Filipino students' mathematical skills have been emphasized in several local and international assessments. This was evident from the recent result of the International Student Assessment Program (PISA). Based on the result released last 2019, the Philippines ranked second lowest in mathematical literacy. The country scored 353 in mathematics, below the Organization for International Cooperation and Development (OECD) average of 487 points. According to the Third International Mathematics and Science Study (TIMSS) reported that the Philippines ranked as 39th out of 41 participating international countries (as cited in Cordova & Tan, 2018, p.103). Moreover, the National Achievement Test results in 2019 reveal that Filipino students are not equipped with the ability to do mathematics. Pagtulon-an and Tan (2018) cited that most schools and academic institutions failed to reach the criterion set by the National Educational Testing and Research Center (NETRC). In different local test administered in different divisions in the Philippines also shows the same challenges. Moreover, different institutions implement various strategies such as online distance learning, modular learning, and blended distance learning to assist the learners and adapt to the ongoing crisis. It is another struggle for learners to cope with the new normal. Students must be motivated, know how to manage their study time and environment effectively, and be aware of the critical role of knowledgeable others in their learning.

Numerous studies demonstrate the importance of students' metacognition and motivational beliefs in their academic achievement. Effective learners are expected to demonstrate the ability to plan, monitor, regulate and control their learning processes concerning their attitudes and behaviors. Hence, to engage successfully in learning, students must have good metacognition skills. It can also be noted that academic success is reliant on students' innate academic motivation which guides students in their learning and personal growth activities (Abdelrahman, 2020). In education, it has a major impact, particularly for students of junior and senior high school. Student's academic emotions can potentially impact academic achievement because it increases the affective attributes of student so that academic achievement of students can be improved with such motivations. Also, several studies have been conducted to probe student metacognition and motivational belief toward academic performance. Prior studies concluded that metacognition is related to mathematics performance (Desoete, Roeyers, & Buysse, 2001), and the student motivation is the factor that directs students' attitude towards the learning process. The findings of Öz (2016) showed

that metacognitive awareness has a significant relationship with academic motivation. Results showed that the components of metacognition are both predictors of academic motivation. For instance, Tian, Fang, and Li (2018) evaluated the participation of students in self-regulated learning on the impact of metacognitive knowledge on the performance of mathematics. Results showed that metacognitive knowledge, self-efficacy, and inherent motivation could predict mathematical performance. Skaalvik, Federici and Klassen (2015) added that self-efficiency and motivation in mathematics could affect motivated behavior such as initiatives, determination, and the quest for assistance through intrinsic motivation in mathematical learning. Based on the results generated, metacognition influences mathematical performance indirectly by its own efficiency and its intrinsic motivation. With these findings, it was found that studies have been formulated with regards to the effect of motivational beliefs in metacognition and mathematics performance. Several components of motivational beliefs significantly affect the relationship between the two variables.

Relative to this condition, the role of both metacognition and motivational beliefs in the learning process has been identified. The two concepts might necessarily intertwine. This study aimed to determine the relationship of the two constructs of self-regulated learning: metacognitive awareness and the respondents' motivational beliefs. Specifically, the study will investigate the mediating effect of motivational beliefs on the relationship between metacognitive awareness and mathematics performance. The study will significantly contribute to understanding the needs, interests, and skills of the students. Specifically, the study sought to answer the following questions.

1. What is the level of metacognitive awareness, motivational beliefs, and mathematics performance of the respondents?
2. Is there a significant relationship between metacognitive awareness, motivational beliefs, and the respondents' mathematics performance?
3. Is the students' motivational beliefs a significant mediator between the relationship of metacognitive awareness and the respondents' mathematical performance?

## **Methods**

### **Research Design**

The study used a descriptive correlational research method. The correlational research design is also used in the study. In this study, the correlation analysis focused on finding the relationship between metacognitive awareness, motivational beliefs, and the respondents' mathematical performance. This study also determined whether the respondents' motivational beliefs mediate the relationship between metacognitive awareness and the respondents' mathematical performance.

### **Instrument**

This study utilized an online questionnaire, which consisted of an adopted inventory and achievement test in mathematics as an instrument. These were both administered through google forms, a survey administration software. The "Metacognitive Awareness Inventory (MAI)" adopted from Schraw and Dennisons (1994) was used to determine the respondents' metacognitive awareness. The "Motivated Strategies for Learning Questionnaire (MSLQ)" of Pintrich & DeGroot (1990) was used to determine the motivational orientations of the students. In this study, the motivational components of MSLQ was only used, which was also

modified in mathematics class. The last part of the questionnaire involves the mathematics Achievement test which assessed the students' mathematics performance.

## Participants

The participants of the study was consisted of 146 junior high school students from a public school. The mean age of junior high school students is 13.76 with a standard deviation of 0.11. Specifically, most of the respondents were 14 years old (27.40%), and only two respondents (1.37%) was 17 years old. Moreover, more than half of the respondents were females (60.96%), and there were only 57 (39.04%) were males. In terms of the grade level, most of the respondents were Grade 7 students (26.71%) and Grade 8 has the lowest number of the students (21.92%).

## Data Analysis

The researcher used various statistical tools for analyzing gathered data that are aligned with the study's objectives. The respondents' demographic profile, metacognitive awareness, motivational beliefs, and mathematics performance were described using frequency, percentage, weighted mean, and standard deviation. Moreover, correlational analysis involves Pearson's  $r$  and regression analysis determine the significant relationships, the possible predictors, and the mediating effects of the three variables. Different regression analyses were used to tests the mediation effect. The study used the Baron and Kenny (1986) four-step approach using regression analysis. The first step involves testing whether metacognitive awareness predicts the students' mathematics performance. The second step includes determining if metacognitive awareness predicts motivational belief. The third step involves exploring whether motivational beliefs predict students' mathematics performance. And the last step focuses on testing complete mediation across the variables.

## Results

### Respondent's Metacognitive Awareness, Motivational Beliefs and Mathematics Performance

The respondents' level of metacognitive awareness was "above average metacognition," ( $M=3.79$ ,  $SD=0.35$ ) which indicated that the levels of metacognition of individual respondents did not vary from the mean. Also, their metacognitive knowledge ( $M=3.80$ ,  $SD = 0.38$ ) and metacognitive regulation ( $M=3.79$ ,  $SD = 0.36$ ) were both described as "above average metacognition" (refer to Table 1).

Table 1. Level of Metacognitive Awareness of the Respondents

Metacognitive Awareness	Mean	SD	Description
Metacognitive Knowledge	3.80	0.38	Above average Metacognition
Metacognitive Regulation	3.79	0.36	Above average Metacognition
Overall	3.79	0.35	Above average Metacognition

The mean score for each subscale of the respondents' motivational beliefs is ranged from 3.53 to 4.02. The respondents' results are over 3.41 for each subscale of all the components of the motivational beliefs indicating that the respondents were described as having above-average motivational beliefs except for the test anxiety (refer to Table 2).

Table 2. Motivational Beliefs of the Respondents

Motivational Beliefs of the Respondents	Mean	SD	Description
Intrinsic goal orientation	3.80	0.56	Above Average
Extrinsic goal orientation	4.02	0.61	Above Average
Task Value	3.81	0.51	Above Average
Control of Learning Beliefs	3.85	0.48	Above Average
Self-efficacy	3.53	0.59	Above Average
Test Anxiety	2.26	0.70	Below Average

The achievement test results shows the students' mathematics performance. The students' mean scores on the achievement test was 34.88 (69.75%), described as "very good" remarks. Grade 7 students had the highest mean score of 36.26 (72.51%), followed by the Grade 9 students with a mean score of 34.76 (69.52%), Grade 10 mean score was 34.41 (68.81%), and grade 8 students got the lowest mean score of 33.88(67.75%). They were all considered to have a very good performance for their first quarter on mathematics.

### Relationship between Metacognitive Awareness, Motivational Beliefs, and Mathematics Performance

Correlation analysis showed that metacognitive awareness ( $r=0.369$ ,  $p<0.01$ ) and extrinsic goal orientation ( $r=0.326$ ,  $p<0.01$ ) were highly significant with respondents' mathematics performance. Also, the students' task value ( $r= 0.170$ ,  $p<0.05$ ) was correlated with mathematics performance. The following results suggest a potential direct and indirect effect of metacognition on mathematics performance and some motivational beliefs components.

Table 3. Relationship between Metacognitive Awareness, Motivational Beliefs and Mathematics Performance

Variables	1	2	3	4	5	6	7	8
1. Metacognitive awareness	1							
2. Intrinsic	.587**	1						
3. Extrinsic	.580**	.415**	1					
4. Task Value	.488**	.578**	.594**	1				
5. Control of learning beliefs	.447**	.340**	.391**	.311**	1			
6. Self-efficacy	.479**	.516**	.293**	.673**	.214**	1		
7. Test Anxiety	-.319**	-.249**	-.333**	-.052	-.314**	-.062	1	
8. Mathematics Performance	.369**	.131	.326**	.170*	.137	.134	-.154	1

\*\* . significant ( $p<0.01$ )

\* . significant ( $p<0.05$ )

### Test for Mediation Models

This study's main objective was to investigate whether motivational beliefs are a significant mediator of the relationship between metacognitive awareness and mathematics performance. Several steps were performed to examine the mediating effects using the Statistical Package for Social Sciences (SPSS). Sets of regression analysis were tested, exploring the mediation

variables of the relationship between metacognitive awareness and mathematics performance. Following the Baron and Kenny's (1998) approach, a set of regression analyses was undertaken, and four conditioned were examined.

The first condition involves examining whether metacognitive awareness is significantly related with mathematics performance. A simple regression analysis was performed to determine whether the metacognitive awareness of the respondents predict mathematics performance. The result shows that the model was significant,  $R^2=0.136$ , Adjusted  $R^2=0.130$ ,  $F_{(1,145)} = 22.761$ ,  $p<0.001$ . The metacognitive awareness is a positive predictor of mathematics performance of the respondents, ( $\beta =0.369$ ,  $t_{(1,145)} =4.771$ ,  $p< 0.001$ ). The coefficient of determination  $R^2 = 0.136$  means that about 13.6% of the variance of the respondent's mathematics performance is explained or accounted for by their metacognitive awareness. Hence, the remaining 86.4% is explained or accounted for or by other variables included in the model. These findings also indicate that students who have high metacognition tend to have outstanding mathematics performance. Thus, the first condition was satisfied.

The second condition includes examining the association of the independent variable (metacognitive awareness) and the possible mediator (components of motivational beliefs). A series of simple regression analyses were performed to determine whether metacognitive awareness predicts motivational beliefs components. Result shows that the regression model for metacognitive awareness and intrinsic goal orientation is significant,  $R^2= 0.344$ , Adjusted  $R^2= 0.340$ ,  $F_{(1,1445)} = 75.611$ ,  $p < 0.001$ , which indicates that the metacognitive awareness is a positive predictor of intrinsic goal orientation ( $\beta =0.587$ ,  $t_{(1, 145)} =8.695$ ). The coefficient determination  $R^2 = 0.344$  means that about 34.40% of the variance in the intrinsic goal orientation is explained or accounted for by their metacognitive awareness. The model is also significant for metacognitive awareness and intrinsic goal orientation,  $R^2 = 0.337$ , Adjusted  $R^2 = 0.332$ ,  $F_{(1,1445)} = 73.149$ ,  $p < 0.001$ , indicating that the metacognitive awareness is a positive predictor of extrinsic goal orientation, ( $\beta =0.580$ ,  $t_{(1, 145)} =8.553$ ). The coefficient determination  $R^2 = 0.337$  means that about 33.70% of the variance in the extrinsic goal orientation is explained or accounted for by their metacognitive awareness. The results also shows that the model for metacognitive awareness and task value is significant,  $R^2 = 0.238$ , Adjusted  $R^2 = 0.233$ ,  $F_{(1,1445)} = 45.091$ ,  $p < 0.001$ , which indicates that metacognitive awareness is a positive predictor of task value of the respondents, ( $\beta =0.488$ ,  $t_{(1, 145)} =6.715$ ). The coefficient determination  $R^2 = 0.238$  means that about 23.80% of the variance in the respondent's task value is explained or accounted for by their metacognitive awareness. In terms of the respondents metacognitive awareness and control of learning beliefs, the model is also significant,  $R^2 = 0.200$ , Adjusted  $R^2 = 0.194$ ,  $F_{(1,1445)} = 35.957$ ,  $p < 0.001$ , indicating that metacognitive awareness is also a positive predictor of the students' control of learning beliefs, ( $\beta =0.447$ ,  $t_{(1, 145)} =5.996$ ). The coefficient determination  $R^2 = 0.200$  means that about 20 % of the variance in the task respondent's control of learning beliefs is explained or accounted for by their metacognitive awareness. Moreover, metacognitive awareness and self-efficacy model is significant,  $R^2 = 0.229$ , Adjusted  $R^2 = 0.224$ ,  $F_{(1,1445)} = 42.778$ ,  $p < 0.001$ , which denoted that metacognitive awareness is a positive predictor of the students' self-efficacy,  $\beta =0.479$ ,  $t_{(1, 145)} =6.541$ ). The metacognitive awareness of the respondents explains 22.9% of the variance in students' self-efficacy. Finally, a significant model was also found on metacognition and test anxiety,  $R^2 = 0.319$ , Adjusted  $R^2 = 0.102$ ,  $F_{(1,1445)} = 16.318$ ,  $p < 0.001$ , which states that metacognitive awareness is a negative predictor of test anxiety, ( $\beta =-0.319$ ,  $t_{(1, 145)} -4.040$ ,  $p<0.001$ ). The metacognitive awareness of the respondents explains

31.9 % of the variance in respondents' test anxiety. These findings indicate that all of the respondents' motivational beliefs satisfied the second condition.

The third condition examines the possible mediator (components of motivational beliefs) that predicts the dependent variable (mathematics performance). Since the respondent's metacognitive awareness was found to be significant with all of the motivational components, all of the effects of these variables were tested. A series of simple linear regression was conducted to determine whether the components of motivational beliefs predict mathematics performance. Results shows that the model is significant with extrinsic goal orientation and mathematics performance,  $R^2 = 0.107$ , Adjusted  $R^2 = 0.100$ ,  $F_{(1,1445)} = 17.170$ ,  $p < 0.001$ , indicating that extrinsic goal orientation is a positive predictor of mathematics performance, ( $\beta = 0.326$ ,  $t_{(1,145)} = 4.144$ ). The extrinsic goal orientation explains only 10 % of the variance in the respondents' mathematics performance. Also, the model for task value and mathematics performance is significant,  $R^2 = 0.029$ , Adjusted  $R^2 = 0.022$ ,  $F_{(1,1445)} = 4.299$ ,  $p = 0.040$ , indicating that task value of the respondents is a positive predictor of mathematics performance, ( $\beta = 0.170$ ,  $t_{(1,145)} = 2.074$ ). The task value beliefs of the respondents explain only 2.9% of the variance in mathematics performance. Hence, extrinsic goal orientation and task value satisfied the condition and tested for the mediating effects.

The last condition implies that the mediation is supported if the mediating variable's effect remains significant when regressed with the independent variable. Also, it must be satisfied that the predictor's effect on the dependent variable must be less when regressed with the mediator than regressed without it. A multiple regression analysis was conducted to determine the possible mediators of mathematics performance. Results show that the model is significant,  $R^2 = 0.155$ , Adjusted  $R^2 = 0.144$ ,  $F_{(1,1445)} = 22.76$ ,  $p < 0.001$ . Mathematics performance was significantly predicted by extrinsic goal orientation ( $\beta = 0.169$ ,  $t_{(1,145)} = 1.789$ ) when extrinsic goal orientation was regressed with metacognitive awareness. This result supports the mediation hypothesis.

Table 4. Multiple Regression Analysis

Step	Independent Variables	Mathematics Performance				
		$R^2$	Adjusted $R^2$	$t$	$\beta$	Sig
1	Metacognitive Awareness	0.155	0.144	2.876	0.271	0.005
	Extrinsic Goal Orientation			1.789	0.169	0.046
1	Metacognitive Awareness	0.137	0.125	4.222	0.376	0.000
	Task Value			-0.150	-0.013	0.881

However, task value is not a significant predictor of mathematic performance when regressed with metacognitive awareness. Furthermore, the effect of metacognitive awareness on mathematics performance was significant when regressed with extrinsic goal orientation ( $\beta = 0.271$ ,  $t_{(1,145)} = 2.876$ ,  $p < 0.01$ ). A reduced absolute size was also found on the effect of metacognitive awareness on mathematics performance when regressed with extrinsic goal orientation. Hence, partial mediation of extrinsic goal orientation was found on the relationship between metacognitive awareness and mathematics performance. Approximately 15.5% of the variance in the mathematics performance was accounted for by the predictors. Figure 1 shows the summary of the regression analysis.

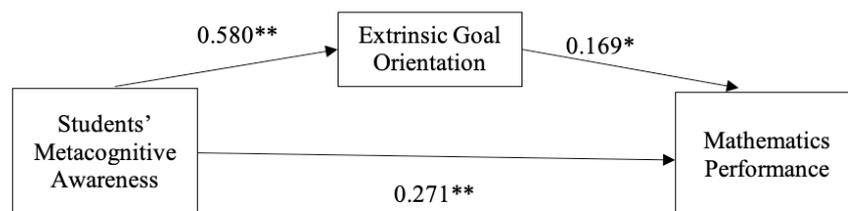


Figure 1. Extrinsic Goal Orientation as mediator between Metacognitive Awareness and Mathematics Performance

## Discussion

As the study quested to describe the respondents' metacognition, findings revealed that the respondents have above average metacognition. Students with above-average metacognition have shown concentrated attention, research intentionally, make study plans, correctly measure their results, and ask questions to ensure comprehension (Sperling, Miller & Murphy, 2002). This also indicates that the respondents are highly aware of how they think. Students with high metacognition are aware of their knowledge of the task, subject, thinking, and self-management consciousness of associated cognitive responses. Meanwhile, findings also found that the students have above the average mean in terms of the motivational beliefs components. Also, the students have below average test anxiety. This result indicates that the respondents are not highly test-anxious. Test anxiety occurs among learners if they experience substantial disagreement between their current behaviors and their progress on their desired goal (Carver & Scheir, 1991). Findings also showed that the respondents have very good mathematics performance. Their good mathematics performance revealed that they can perform mathematics tasks for the first quarter.

A significant positive correlation was found on metacognitive awareness and extrinsic goal orientation with respondents' mathematics performance. Also, task value and test anxiety were related to mathematics performance. These findings indicate that students with high metacognition tend to have high mathematics performance. This result is similar to Young and Fry (2008), which revealed that if the students have well-developed metacognition, they will excel academically. Extrinsic goal orientation is also highly correlated with mathematics performance. This implies that students who are externally goal-orientated tend to have high mathematics performance. Students who are predominantly motivated by external factors such as having high grades, comparing with others, seeking recognition or rewards in mathematics studies tend to have high success in mathematics. Task value beliefs are also related to mathematics performance. This indicates that students' perceptions of the attractiveness of a particular task or content in mathematics class are related to their mathematics performance.

The foremost aim of this study was to examine the mediating effects of motivational beliefs between the relationship of metacognitive awareness and mathematics performance. A series of regression analyses using Baron and Kenny's (1986) approach was utilized to determine the mediation effect of the motivational components. The overall results of regression analysis provide evidence of the partial mediation effect of extrinsic goal orientation on the relationship between metacognitive awareness and mathematics performance. Partial mediation is seen as the metacognitive awareness that has both direct and indirect effects on mathematics performance. This result indicates that external goal orientation plays an important role in metacognitive awareness and mathematics performance. Extrinsic goal

orientation causes changes in both metacognition and mathematics performance. These results also emphasize that teachers should consider the extrinsic goal orientation of students in mathematics subject which is useful to adopt metacognition more actively and effectively. These findings contradict the study that metacognitive knowledge exerted its effect on mathematics performance through the indirect mediating effect of self-efficacy and intrinsic motivation (Tian, Fang, & Li, 2018). The study found that extrinsic goal orientation do not mediate metacognition and mathematics performance. Similarly, Eklides (2011) demonstrate that self-efficacy is the complexly linked with metacognition. Moreover, the study also found that metacognitive experience has a direct effect on mathematical problem-solving performance (Ozcan, 2016). Lai, Zhu, Chen, and Li's (2015) study indicated that anxiety in mathematics has an adverse impact on mathematical problem solving through metacognition. The only non-cognitive construct that had a direct influence on mathematical problem-solving success was metacognitive activity; it also mediated the effects of self-efficacy, motivation, and performance anxiety in mathematics. Motivation and anxiety in mathematics have had an indirect effect on the performance of mathematical problem solving through self-efficacy (Ozcan & Gumus, 2019). Also this result suggested that external goal-orientation should be taken into consideration as it has direct and indirect effect on mathematics performance.

## **Conclusion**

The findings of this study shows the crucial role of metacognition and motivational beliefs among students' mathematics performance. It is therefore recommended that teachers plan activities in which students can develop their awareness and reflect on their thoughts. It is suggested that teachers use educational strategies including providing explicit instruction in both metacognitive regulation and metacognitive knowledge, and activities that make student beliefs and conceptions visible to support metacognition. It is also suggested that teachers implement strategic practices that improve their skills academically and improve some of their affective attributes. It is important that every students must develop holistically. Mathematics teachers should implement teaching strategies that will strengthen the students' performance. Mathematics teachers should provide activities and learning tasks to assist their students in a deeper understanding of mathematics concepts. With these results, it can be noted that the following construct are crucial in mathematics class. The results suggested that the following construct needs to strengthen inside the mathematics classroom associated with mathematics performance. Teachers should provide appropriate learning experiences that might help in improving mathematics performance. The result of this study were gathered based on the Baron and Kenny (1986) approach of testing the mediation. This approach has dominated the mediation analysis within social science research. However, experts argued that this strategy holds many limitations. Therefore, the relationships indicated in this paper need to be tested and further studies with more enormous or disparate samples need to be carried out. In addition, the study's findings should not be generalized due to the limited scope of the study. The students who are involved in this study may not represent all the adult learners as this was also limited to mathematics class. Finally, additional variables which were not included in this study may confuse the associations between various variables using different measures within this study. With the following results, the future researchers are advised to make further related research to affirm the findings of this study.

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### *Speaking Anxiety: Japanese Students in the EFL Environment*

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#### **Abstract**

The present study was carried out as a means of investigating and understanding the nature and sources of speaking anxiety in the EFL classroom. In order to determine which speaking activities students find to be the most anxiety producing, a qualitative questionnaire was administered. Participants consisted of 140 Japanese students in the first and second year of university. By obtaining a deeper insight into anxiety causing activities, instructors can better address this issue. The findings in this study indicated that students believe speaking activities such as presentations and conversations to be the greatest cause of anxiety. Interestingly, students find the practice and preparation to be among the most helpful tools for helping them mitigate feelings of anxiety. Based on findings, authors will offer recommendations for possible activities to be used in the classroom. These activities may help students mitigate feelings of anxiety, in order to help learners become more communicatively competent, which may lead to greater self-confidence, thereby helping students achieve their language learning goals.

Keywords: Speaking Anxiety, Language Learning, Activities

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## Introduction

Language Anxiety is defined as “the feeling of tension and apprehension specifically associated with second language contexts, including speaking, listening, and learning” (MacIntyre & Garner, 1994). Because this type of anxiety is the result of a combination of factors intrinsic to language learning, it is considered a situation-specific form of anxiety (Horowitz et.al, 1986). This type of anxiety is measured by three inter-linked components: communication apprehension (the fear of communicating with others), fear of negative evaluation (apprehension by evaluation of others, and test anxiety (performance anxiety due to fear of failure) (Horowitz et.al., 1986).

Because speaking is a significant part of language learning, language anxiety typically manifests itself in situations where spoken language production occurs (Dewele, 2002; Woodrow, 2006).

Thus, speaking anxiety is a major hurdle learners must overcome in the language classroom (Öztekin, 2011; Wang & Chang, 2010). When speaking, feelings of anxiety cause negative learner perceptions such as feelings of self-doubt, or shyness when communicating orally before peers (Mayer, 2008). In addition, it has been found to cause problems related to self-confidence and self-esteem as learners often engage in self-deprecating thoughts, such as “I’m stupid” or “I can’t do this,” which affects a learners ability to see themselves as a successful learner (Pappamihiel, 2002; Kalra & Siribud, 2020). These components have a significant negative effect on learner perceptions of “self” and beliefs about language learning, which in turn affect learner achievement and performance levels in the target language (Young, 1991). This threat to a learner’s sense of self, can result in a learner feeling discouraged or losing faith in their abilities, refrain from participating in classroom activities, and potentially giving up the effort to learn the language (Na, 2007, as cited by Awan et.al., 2010).

In addition to learner perceptions of “self,” anxiety can also affect a learner’s appraisal of classroom situations. Anxiety may result in a learner perceiving certain activities as threatening, which can negatively affect the learning process (Pappamihiel, 2002). Student perceptions are influenced by their fears of making mistakes, fears of leaving a bad impression on others, or fears of disapproval by others (Aydin, 2008). Thus, those who experience speaking anxiety do not feel confident when required to speak in the target language, preferring to remain silent. Unfortunately, the longer students are exposed to anxiety causing activities, the more likely to become “fossilized,” and the more difficult to overcome (Tercan & Dikilitas, 2016).

## Research Questions

1. What specific classroom activities provoke anxiety in the classroom environment?
2. What classroom activities help mitigate language learning anxiety?

## Rationale

According to Horwitz (need to mention the original year, need to mention the original year, as cited by Guess, 2007), although foreign language anxiety typically affects 28 to 30 percent of European language learners, and around 33 percent of U.S. learners, it affects 40 to 43 percent of Asian learners. In Japan, speaking anxiety among learners is typically due to student fears of ‘taking risks’. This fear often means that students are unlikely to speak until they are called

on (Koba et al., 2000). According to Yoshida (2010), this tendency of Japanese students to remain silent has been attributed to cultural features such as: maintaining harmony and avoiding direct opposition. In addition, Japanese people tend to be indirect in their communication, they often interpret feelings and convey their intent via nonverbal communication. Thus, understanding these cultural factors are crucial to understanding where learner anxieties stem from. With this understanding, teachers can assess the best tools to utilize to foster student success.

## **Methodology**

### **Participants & Setting**

Participants consisted of 140 first and second-year English majors, at a Japanese university. Class sizes ranged between 17-25 students, between the ages of 18-21. The study was performed within a mandatory four-skills English course, which participants must enroll in as part of their degree requirement. Participation was fully voluntary, and students were advised that data collected would be confidential, and participation would have no bearing on course grades. The study was conducted mid-semester, during the spring of 2021.

### **Data Collection**

The study adopted a qualitative survey design to assess both learner experience, and student beliefs about language learning anxiety. A questionnaire, written solely in English, consisted of twenty-one items, and was developed as the instrument for data collection (see APPENDIX A). The twenty-one questions consisted of general background information; student perceptions about their communication ability; and learner experience and beliefs.

## **Results**

### **Causes of Anxiety When Expressing Self in English**

When asked about general feelings of anxiety when expressing themselves in the target language, seventy percent of students admitted to feelings of anxiety. Having ascertained the number of students that generally experience feelings of anxiety in the classroom, students were then asked about the causes of these feelings. Based on the results, the majority of students feel anxious about speaking in English because of a lack of confidence, or because they feel they lack the vocabulary or other language skills necessary to express themselves.

Among the responses were comments such as: "I realize I can't speak English well" [Rikuto], and "My English is not good enough to express myself perfectly, and I'm afraid of being misunderstood by someone" [Kyoka]. Another student stated they were feeling unsure of the "correctness" of their grammar. Finally, a striking example that encapsulates a common sentiment shared by many students is, "I'm unable to articulate my views precisely." Because individuals understand how to communicate effectively in their native language, attempting to find the appropriate words or phrases in English may be incredibly unpleasant and anxiety-inducing.

### Component of English that Causes the Most Anxiety

Theme	Code	Responses	Percentage
Part of English that causes the most anxiety	Speaking	80	57%
	Vocabulary	52	37%
	Listening comprehension	40	28%
	Grammar	39	27.6%
	Pronunciation	18	13%

Table 1. Which Part of English Causes You the Most Anxiety?

The result shows that oral communication and lack of vocabulary are one of the biggest stressors in the target language. Students are also hypersensitive to their grammar and grammatical faults, as learning correct grammar is a major priority in junior high and high schools. Additionally, it is intriguing that listening to the teacher and comprehending their peers, as well as not understanding their listening activities, are included in replies. All of these factors contribute to the nervousness and anxiety they experience in the classroom.

### Anxiety Producing Speaking Activities

In order to understand stress inducers, our survey delved deeper into the reasons students experience anxiety and the activities that cause them the greatest discomfort.

Theme	Code	Responses	Percentage
Anxiety Producing Activities	Public Speaking	51	36%
	Conversations	39	28%

Table 2. What Speaking Activities Cause You the Most Anxiety?

Results support prior research showing that learners with high levels of anxiety are more likely to think and behave in ways that are not connected to the task, thus undermining their performance, (Sarason, Sarason and Pierce, 1990; Spielberger, 2013). Hence, students are likely to obtain a lower grade. Finally, students expressed that their greatest concern is the dread of the audience, which is tied to peer sentiments toward the speaker.

### Causes of Anxiety in Speaking Activities

It is important for teachers to understand causes of anxiety in speaking activities so that they can make the necessary adjustments to help students overcome their anxieties and improve their English proficiency.

Theme	Code	Responses	Percentage
Causes of Anxiety in Speaking Activities	English Skills & Vocabulary	70	50%
	Negative Emotions	38	27%

Table 3. How/Why Do These Speaking Activities Cause You Anxiety?

Based on results, the majority of students experience negative feelings when they participate in speaking activities. According to Emi, "I worry about whether the other person will understand what I'm saying." Or another student Yuki wrote, "Because when I don't know what I want to say, I became panic." While 27 percent of students stated they lacked sufficient language knowledge (vocabulary and skill), this was the primary source of their speaking concerns. Another student commented that, "Because I care too much about grammar and I'm still having trouble listening to native English" [Yuria], or according to Ayano "English words do not come out." Each of these factors can result in making them feel more stressed while speaking English.

### Activities Helpful/Useful to Language Learning

With regards to student beliefs about activities that are helpful to the language learning process, student responses centered around speaking, reading/writing/vocabulary, and listening activities.

Theme	Code	Responses	Percentage
Useful Activities for Language Learning	Speaking	81	57.8%
	Reading, Writing, and Vocabulary	20	14.3%
	Listening	12	12.1%

Table 4. Activities Helpful/Useful to Language Learning

### Speaking

Although respondents find speaking to be among the most anxiety inducing activity in language learning, they also find this activity to be the most useful to the language learning process. For students, speaking activities are not only helpful for improving all language skills as a whole, but they offer the practice needed to better express themselves in the target language. Comments such as: "Speaking is contained the skills of listening comprehension, grammar, pronunciation, and vocabulary, which means all we have to improve our English levels or skills is speaking and doing conversations" [Kazuki] or "Through these activities, I can practice listening to person's thought, telling my opinion and comparing it with mine" [Sakura], were common among respondents. In addition, students often see speaking activities as a source of connection to other cultures or people around the world: "Because it allows us to connect with people all over the world" [Ryousuke].

## Reading, Writing, and Vocabulary

With regards to reading, writing, and vocabulary, students find that learning vocabulary is an essential base if seeking to develop language skills. According to one respondent: “because learning vocabularies makes me reading English sentences easy and it expand the width of expressions in English. And if I speak much English in daily lives, I could speak English more natural and tell others my all feelings and ideas like speaking Japanese” [Miku]. This was a sentiment that several students expressed, as they consider vocabulary to be a key feature in language learning, therefore they found activities such as reading to be helpful to vocabulary acquisition.

## Listening

Finally, students also noted that listening activities were useful to the language learning process. Some students find that these are helpful to understanding a speaker on a deeper level. “Because if I will be good at listening and hearing, I am able to understand what a speaker says or how a speaker thinks when I talk to people even if I can't express my opinion well” [Yuki]. While others stated that listening to native English speakers assists them in learning “natural” speech patterns. “Because I can learn about natural English conversation” [Haruka].

## Strategies to Reduce Anxiety

The final section of the questionnaire focused on strategies students themselves use in reducing learner anxiety. Based on results, there are four main strategies learners utilize.

Theme	Code	Responses	Percentage
Strategies for Reducing Anxiety	Practice & Preparation	50	35.7%
	Positive Attitude	30	21.4%
	Improve Vocabulary/Language	28	20%
	Asking for Help/Support	6	4.3%

Table 5. Strategies Used to Reduce Anxiety

## Practice & Preparation

According to the findings, students felt that practice and preparation were helpful in reducing anxiety. Comments such as: “Before beginning to speak, I try to organize my thoughts” [Takuma], “I get used to it by increasing the chances of talking” [Kirari], and “I communicate in English more actively, and I get used to speak in English” [Haruto] were among the responses given. Students find that practice and preparation not only helps them to organize their thoughts, but it allows them to get used to speaking in the target language, which increases their level of confidence, thereby mitigating levels of anxiety and encouraging them to be more proactive.

## **Positive Attitude**

Student strategies for maintaining a positive attitude were among the most interesting results in this study. Although students cited the ‘fear of making mistakes,’ and ‘lack of confidence,’ as the greatest sources of anxiety, they also maintained that not worrying about mistakes, and approaching an activity with a confident attitude, were key to reducing anxiety. Comments such as: “ I try to speak a lot and I don’t mind mistakes” or “I’m not afraid mistakes,” and “To be confident” or “ Keep smiling,” were common.

## **Improve Vocabulary/Language & Asking for Help/Support**

Finally, students cited both improving vocabulary, as well as asking for help, as helpful strategies for reducing anxiety. Because students find the inability to express their opinions due to the lack of the necessary vocabulary, as a great source of anxiety, it is unsurprising that improving vocabulary is seen as a useful strategy in mitigating these feelings. And in situations where students have difficulty expressing their views, they find great comfort in receiving support from their fellow classmates. Thus, having a supportive environment in which students feel at ease asking for assistance is beneficial.

## **Limitations**

The key 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 was collected from a single survey conducted in the middle of the first semester, so a study conducted over a longer period of time, and with regular surveys, may have produced deferring 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.

## **Recommendations**

Given the results of the study, authors offer two potential strategies for helping mitigate student anxiety in the classroom. The two recommended methods include using humour, and/or using music in the classroom. Both of these strategies are useful in helping students relax, thereby reducing speaking apprehension. This has the potential of encouraging the learner to speak more, and in so doing, increase their linguistic performance. In addition, using humor and/or music in the classroom can foster an enjoyable learning environment, which could play a critical role in overcoming tension and uneasiness, therefore making students more receptive to learning. As a result, these activities may help in building group cohesion, bridging the language gap, and making the learning process more successful.

According to Berk (2002) humor is vital for the two most essential ingredients in education, namely the lecturer-student relationship and engaged learning. Humor creates a positive relationship between teachers and students, it reduces stress and tension in the classroom, facilitates learning, supports good retention, develops creativity, and streamlines teaching in general. Mistakes are a natural part of learning, thus to build an environment where mistakes are accepted rather than feared, humour can be a helpful tool. As Pretorius, Koen & Schall (2020) stated “When students are smiling, they will be more motivated to engage in learning”. Thus, by incorporating humor in lessons, by assigning groups to create a funny joke in English

and share it with the class, by tasking students to find a joke online and translating, or even displaying a funny sitcom in English will infuse the classroom with a sense of humor that students will appreciate and pique student interest in learning.

With regards to music, this activity can be used in several ways. The first is as a form of ice-breaker. When students are reluctant to speak in class, the instructor could play music and ask students to speak over the sound of music to ensure their speaking partner can hear what they are trying to say. Students often find this activity amusing, quickly building a sense of comradery with their partner (due to a shared moment of humor), allowing them to set aside some of their apprehensions about speaking in the target language. The second method of using music in the classroom is using it during discussion periods as general background music. This allows students to focus on their speaking partner and conversation, instead of classroom sounds (or lack thereof) around them.

## **Conclusions**

This study showed that students are anxious about speaking activities such as presentation and conversations. In addition, students are concerned about their grammar accuracy, vocabulary usage, pronunciation, and meaning to be understood when speaking English in the classroom. Interestingly, activities students find the most anxiety inducing are also thought to be the most useful in language learning. However, students find that practice and preparation helps them to reduce these anxieties. Although the classroom environment will never be anxiety-free, an awareness of the activities that cause the most anxiety can help instructors try to mitigate these anxieties. While it is unreasonable to expect instructors to be able to control all anxiety producing factors, it is important to recognize the complexities that are at play in a foreign language situation, as they may be more nuanced than expected. Both humor and music may not only help teachers create a positive and effective learning environment but also serve as a source of enjoyment. By reducing anxiety and tension, students can take on further risks and challenges in their language learning.

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## Appendix-A

### Questionnaire

#### Part A: Background Information

1. Name
2. Sex
  - a. Female
  - b. Male
  - c. Other
3. School Year
  - a. First-Year
  - b. Second-Year
4. University Major
  - a. EIBEI
  - b. English Communication
5. At what age did you start learning English?
6. What is the second foreign language you are learning?
  - a. Arabic
  - b. Chinese
  - c. French
  - d. German
  - e. Indonesian
  - f. Italian
  - g. Korean
  - h. Portuguese
  - i. Russian
  - j. Spanish
  - k. Thai
  - l. Other

#### Part B: Communication Ability

1. How confident do you feel expressing yourself verbally in Japanese?
  - a) extremely confident
  - b) confident
  - c) a little confident
  - d) not very confident
  - e) no confidence
2. How confident do you feel expressing yourself verbally in English?
  - a) extremely confident
  - b) confident
  - c) a little confident

- d) not very confident
- e) no confidence

### Part C: Learner Experience & Beliefs

1. Does your teacher affect your language learning experience?
  - a. Yes
  - b. No
- 2a. Do you ever feel anxious/nervous when expressing yourself in English?  
(If yes, please answer question 2b)
- 2b. If you answered “Yes” to question 2a, please share why?
- 3a. What speaking activities cause you the most anxiety?
- 3b. How/Why do these speaking activities cause you anxiety?
4. Which part of English causes the most anxiety?
  - a. speaking
  - b. listening comprehension
  - c. grammar
  - d. pronunciation
  - e. vocabulary
5. What activities are the most useful to you for learning English?
6. How/Why are these activities useful?
7. What strategies do you do to reduce your speaking anxiety?

***Supporting Students in a Changing Educational Climate:  
A Systems Engineering Case Study***

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The Asian Conference on Education 2021  
Official Conference Proceedings

**Abstract**

Whilst the coronavirus pandemic has posed andragogical and pedagogical challenges to educational establishments in how they restructure courses to permit continued delivery in an online world, it has also caused significant disruption to students, not least in terms of how they have maintained their ability to continue to study and learn. A significant element in this is how student learning preferences such as experiential/practical or traditional lecture-based study have been served or disrupted by the revised delivery mechanism(s). This is particularly the case where the subject matter is management or engineering-related, and requires a great deal of interaction and collaborative multi-stakeholder work. Where the course is being taught at level seven, and therefore requires self-directed learning, this is even more the case. This paper considers those student learning preferences in this light, and studies the extent to which teaching andragogy has been modified to utilise activities which safeguard learning styles and facilitate continued effective learning. To do this, different learning styles and preferences are analysed, and a study is made of how these were satisfied in pre-pandemic education, using a Systems Engineering MSc course as a case study. Practice during the coronavirus pandemic is then considered to gauge how effective changes to course delivery made necessary by the situation were in supporting learners during this period and facilitating their further study and progression toward their desired qualification. Successes and failures are described, and conclusions are reached on how learning preferences can be better supported andragogically on an ongoing basis.

Keywords: Andragogy, Supporting Students, Systems Engineering

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## Introduction

The coronavirus pandemic which began in 2019 (WHO, 2021) caused several problems for the education sector. In the United Kingdom, as in the rest of the world, measures were introduced in March 2020 to attempt to control the spread of the coronavirus. Principally, these were (UK government, 2020):

1. Requiring people to stay at home, except for very limited purposes.
2. Closing certain businesses and venues.
3. Stopping all gatherings of more than two people in public.

From a university perspective, the challenges presented by this centred around how to keep operating, doing consultancy, delivering educational offerings, and continuing to research in order to remain viable financially. From a course delivery perspective, the focus became ‘how can we continue to deliver education and training under pandemic conditions?’. The main obstacle in this respect was to devise a method of being able to facilitate teaching and learning that did not involve face-to-face (F2F) delivery. Whilst lessons could be learned from other education providers whose delivery mechanism had always been predominantly at distance, such as the UK Open University (Open University, 2021), certain courses rely on F2F delivery to realise the full learning potential of the student and their wider cohort, allowing them to fully explore the topic area. Systems Engineering is one such topic, and Barker (2021) explored the difficulty in maintaining delivery of such a course, using Cranfield University’s Systems Engineering MSc and apprenticeship (Cranfield University, 2021) course as an example. One of the andragogical challenges was found to be that as a UK level 7 (UK government, 2021) course, “the focus must be on activities that allow students to explore the use of concepts in situations which are as realistic and reflective of real-world scenarios as is possible” (Barker, 2021). With systems engineering, this is particularly challenging due to the multidisciplinary, highly interactive nature of the topic. Although the essentials of the topic could be delivered through lectures and supervised exercises (Bligh, 1998; Bonesso et al., 2015; Garside, 1996) packaged either as live online taught sessions or voiced over slides hosted on a virtual learning environment (VLE) platform, inculcation of interactive hands on experience, and experiential learning more generally, essential to level 7 learning and as advocated by Pugsley & Clayton (2003) and Illeris (2007), proved to be a more difficult problem to solve. This was a key issue as it was also central to the student learning experience, and with that in mind, the needs of the students and how they may be supported in their learning journey was an important consideration when planning the revisions to educational delivery made necessary by the coronavirus pandemic. Set against the measures introduced to combat the coronavirus, students faced a number of difficulties, such as studying and working from home whilst balancing this against family life, and other factors such as the worries and psychological pressures imposed by ‘lockdown’. In particular, Coronavirus measures posed the following difficulties to students in respect of continuing to study:

- No F2F study possible, and being unable to access onsite university facilities
- Students were called away from study for work purposes or family matters, meaning that their studies were interrupted
- The time that students were able to spend on study was reduced, and
- A dependency on their own IT infrastructure meant that students sometimes experienced connectivity issues and were thus unable to access online resources or join live taught sessions

This paper will consider how the Cranfield Systems Engineering MSc course team went about supporting students in the face of these difficulties, tuning delivery mechanisms to maintain the learning experience, and continuing to meet student expectations. The needs and expectations of the student learning experience is first considered, before the methodological approach to refining the teaching andragogy and supporting students' learning is described, and results are stated. Conclusions and further work are then evaluated.

### Student Needs and Expectations of Learning in an Online World

In order to understand how to better support students, it is important to understand their needs, and that these in turn are influenced by individual circumstances, motivations, and expectations. Before we examine these, however, it is useful to set out how students were supported in pre-coronavirus times. Generally, from an academic perspective, students are allocated a mentor to whom they can turn with any queries about the course, or any difficulties that they might have with course material. Students can also make recourse to the Course Director with any queries or complaints, and can consult with the student administration team to discuss marks or matters of progression through modules and the wider course. From a pastoral perspective, students can talk in confidence to the Flexible Education Coordinator – a member of the course team dedicated to solving student problems – or can speak directly to the Student Support team based within the academic school. Any issue raised by a student is treated with utmost confidence. A more complete summary of these support paths is provided at table 1 overleaf. During the pandemic, these services remained available to students, albeit virtually rather than F2F, and the nature of support offered was varied due to the pressures experienced by students in what were quite unique circumstances. In order to examine how student needs changed – and therefore the requirement to support was altered, it is necessary to consider the circumstances in which students found themselves – or in this context “blockers” and other factors affecting student learning – as well as student motivations and expectations.

The literature describes a number of potential “blockers” to student learning. Ehrhardt & Archambault (2020) argue that the attitude and disposition of students is a critical factor, whilst Palmer et al (2017) list conceptions of learning and knowledge; pedagogical design of module and course; relationships, socialization and collaboration; interaction; accessibility and perceived ease of use; clarity of purpose and approach to task; student agency and autonomy, and quality content as being key factors to consider. Wilson (2012) highlights time available to learn or study as being important, whilst age is cited by Truluck et al (1999). Kolb (1984) and Shneiderman (1998) point to how individuals learn as being a central factor, and this is corroborated by the work of Honey and Mumford (1982) on leaning styles. All of this has to be set in the context of ensuring the required quality (QAA, 2014) and right level of learning (Bloom, 1979). These works suggesting blockers to student learning broadly support experiential findings based upon delivery of the course over a number of years. Importantly, many of these factors were impacted, or exacerbated, by the coronavirus pandemic.

Support Path		Support offered
Mentor	(Primarily) Academic	Queries about course material, any issues or difficulties with course progression etc
Module Leader	Academic	Queries regarding individual module material or assessment

Course Director	Academic	Queries about the course either directly, or elevated from discussions with mentor or module leader; Complaints about course or marks awarded
Student Administration team	Academic	Queries with regard to progression, marks, or process
Flexible Education Coordinator	Pastoral	Problems other than academic in nature usually course-based
Student Support team	Pastoral	Problems likely to be of a more serious nature other than academic
Information Technology	IT	Issues with information technology generally, and online university resources in particular
Library support team	Library	Obtaining library references and sources, study support

Table 1: Support Available to Students Pre-Pandemic

In addition, there are the blocking factors which have been found to be particular to the coronavirus pandemic. Savage (2021) writing in *The Guardian* newspaper online discussed the rise in loneliness and mental distress due to being required to work from home, whilst Ellis (2021) writing in *CEO Magazine* suggested that working away from the office created more pressure as people felt the need to prove themselves more, and were thus working longer hours. Student feedback showed that this psychological pressure was only compounded by the need to balance family life against work and study, as schools were also closed due to the pandemic, and this resulted in less time to study, and a reduced ability to study in a structured manner. Moreover, reliance on personal IT infrastructure caused issues with study as identified earlier in this paper. Such is the phenomenon that the UK National Health Service offered advice on how to look after mental wellbeing whilst working at home (NHS, 2021). Blockers to student learning can thus be summarized as follows:

- Work and family pressures
- Psychological factors
- Potentially limited by lack of IT infrastructure
- Not able to learn in preferred way
- Individual learning style
  - Preference for particular teaching/learning method – i.e, taught lectures, individual research task, group workshops etc
  - Potential lack of access to facilities
- Individual learning preferences
  - Technology enhanced learning (TEL) seen by some as more restrictive than F2F activities
  - Need to maintain standards of educational offering

Based this thinking, and building upon experience of delivering the course, it might be possible to suggest factors which influence learning. These are described at table 2:

Factor	Type of influence
Age	Age may relate to a preference for F2F learning, or ease of adoption of online learning techniques
Experience of the individual	The greater the level of experience, either in the

	workplace or with the subject matter, the more likely the individual might be to be able to conceptualise, rationalize, and reflect upon concepts and issues
Length of time out of education	If out of education for a period of time, the individual is more likely to require increased guidance, and could be reluctant to put forward their own view
Learning style and preference	A preference for formally taught methods, or for less structured workshops will affect how an individual learns
Inclination to learn/Motivation	The reason for study could affect an individual's determination to succeed, and to adapt to revised teaching and learning andragogy
Level of previous qualification	Individuals without previous qualifications, or with relatively low-level qualifications, are likely to exhibit a preference for more formal teaching methods

Table 2: Factors Influencing the Ability to Learn

Truluck et al (1999) suggests that with age, learning preferences alter; there is a tendency toward hands on application, perhaps when combined with knowledge gained through experience. This would suggest a leaning toward a preference for F2F learning with an emphasis upon interaction and the ability to bring experience to bear on real life case studies in workshop conditions. At the same time, evidence suggests that older individuals are less inclined toward IT-based solutions (Henshaw et al, 2012; ONS, 2019), and as a result of this, it might be suggested, could be less accepting to online learning. Conversely, the ONS (2019) research shows that younger adults are more likely to embrace IT, and might therefore be more comfortable with online-only learning. Experiential learning (Kolb, 1984; Kayes et al, 2005; Hawtrey, 2007; Siberman, 2007) is deemed to be a key facilitator to learning, allowing individuals and groups to share experiences, learn from experience, and bring experience to bear on problem situations, and again this might lend itself more toward F2F learning than online study.

Experience of delivering the course suggests that those who return to study after a period away exhibit a preference for more formalised or structured teaching method techniques, whilst Garside (1996) and Fry et al (2009) demonstrate that individual learning styles and preferences affect how an individual learns. Methods such as MBTI (Briggs-Myers et al, 2003) tend to support this by suggesting that individuals can be "typed" as *Introversion/Extroversion, iNtuition/Sensing, Feeling/Thinking, and Perception/Judging*, and that this dichotomy can be used to inform understanding of how an individual might learn, and what their preferences might be. Honey and Mumford (1982) produced a categorization of learning styles, detailed at table 3 below, which further suggested that preferences dictate how individuals learn.

Classifier	Descriptor
Activist	Responds most positively to learning situations offering challenge, to include new experiences and problems, excitement and freedom in their learning
Reflector	Respond most positively to structured learning activities where they are provided with time to observe, reflect and think, and

	allowed to work in a detailed manner
Theorist	Respond well to logical, rational structure and clear aims where they are given time for methodical exploration and opportunities to question and stretch their intellect
Pragmatist	Respond most positively to practically based, immediately relevant learning activities, which allow scope for practice and using theory

Table 3: Categorisation of Learning Styles (Honey and Mumford, 1982)

Finally, experience suggests that where an individual either does not have a previous qualification, lacks experience in the subject matter, or possesses a qualification which might be considered relatively low-level, then they will expect for formal instruction in the topic with guided exercises and worked solutions, and this might again indicate a preference for a more structured teaching method.

### Student Motivations and Expectations

The motivation of students is an important factor in their will to succeed at studying and completing the course. Motivational theory as set out by the likes of Herzberg (2017), Maslow (1943), and analysed by the likes of Pardoe (1990) and Bassett-Jones and Lloyd (2005) sets out a hierarchy of motivational factors, ranging from core needs to self-fulfilment. It can be argued that if the need is sufficiently important, such as a pre-requisite for promotion, or professional membership for example, then the student will be more determined to achieve the qualification, and thus more ready to adapt to changing circumstances and constraints, than they would if the course was merely being undertaken for the purposes of continual personal development, and its completion held no intrinsic consequence.

Student Expectations are another key factor when considering how support of their studies needed to evolve in the face of the pandemic; expectations vary with the individual, but discussions with students showed that despite a need to change the delivery mechanism of the course, there was still an expectation that quality would be maintained to the required standard (QAA, 2014), and that variety of teaching methods will still cater for individual study and learning preferences. Thus, the concept of 'blended learning', utilizing a mix of formal lectures and exercises, and more informal and unstructured workshops and research activities to maintain student interest and enthusiasm (Ramsden, 2003) previously utilized, needed to be adapted and maintained in an online educational environment. Barker (2014) researched student expectations for both education and training in pre-coronavirus times, and these are shown at table 4. It became evident that in discussions with students that broadly these remained true of any adapted delivery mechanism to facilitate continued teaching through the pandemic.

	Training	Education
Delivery Structure	Structured, highly regulated	Less structured, more interactive
Format	Formal Lecture, structured workshop	Lecture and workshop

Teaching style	Formal instruction	Debate, peer workshop
Interaction	Minimal	Expression of opinion
Lecturer view	Taken as authoritative	Challenged through debate
Personality “type”	Untailored	Tailored

Table 4: Student Expectations of Learning Experience (Barker, 2014)

It can be noted that should the course have been training rather than education in nature, the process of adapting to online-line only delivery would theoretically have been simpler as the highly-structured nature of training would have loaned itself more readily to tightly-packaged online live sessions, mixed with voiced-over presentations and bounded exercises with worked solutions. An educational offering at level 7 (UK government, 2021), however, needed to maintain the interactive unstructured workshops that would stimulate debate, exploring different possibilities, and facilitating the reflection vital to the understanding of complex issues (Biggs and Tang, 2007). Having considered student needs and their implications for course study support, along with motivations and expectations of study, we will now focus on the process of affecting the necessary change to implementing revisions to that support.

### Methodology and Application

After initial discussions with the Systems Engineering MSc course team, it quickly became clear that it would be necessary to review the existing course structure, summarised at table 5 overleaf, and evaluate how much of the delivery mechanism could be transferred directly online, and how much would have to be altered or redesigned. How the revised educational offering could be facilitated would then have to be addressed, before viewing the intended revised delivery mechanism through the prism of student expectation as discussed above to ensure that it could maintain relevant educational standards (QAA, 2014) and meet student needs. The last step of the approach would be to agree the final shape of the andragogical structure, and to put in place revised student support mechanisms. Thus, the methodology for undertaking the process of revising the course offering was as described below.

1. Review existing course structure and identify alterations necessary to facilitate online-only delivery
2. Plan how the revised offering could be facilitated
3. Consult on how this could be made to meet with student expectation
4. Revise the andragogical course offering
5. Put in place the necessary student support mechanism

It was noted that discussion with students would be needed regularly throughout the process, and that feedback would need to be sought before, during, and after module delivery to enhance the learning process as far as was possible.

		Teaching Mechanism	Intended Purpose
1.	Introductory module	Lectures	Understanding of basic principles
		Tightly-specified exercises	Reinforcement of understanding
		Worked examples	Demonstration of issues
		Prescriptive assessment	Application of models

2.	PG Certificate modules	Lectures	Key principles
		Exploratory exercises	Testing of concepts
		Managed workshops	Experiential learning; peer-to-peer learning
		Open-ended assessment	Judgemental application, exploration of issues
3.	PG Diploma modules	Short interactive taught sessions	Exploration of key issues
		Individual research	Investigation of issues and effect on workplace issues
		Group workshops	Student-led application and critical evaluation
		Reflective assessment	Individual reflection on issues and outcomes
4.	Capstone workshop module	Short interactive brief	Brief explanation of task
		Student-led group workshop	Exploration of real world problem solution across a project lifecycle
		Reflective assessment	Group presentation & portfolio; individual reflection on issues and outcomes

Table 5: Summary of Pre-Pandemic Systems Engineering Msc Course Structure

The process by which the course was modified for online delivery is set out in Barker (2021), but broadly it was recognised that interaction with students would be vital, and so live sessions where possible would be key to providing necessary understanding and support, and these could be supplemented by voiced over presentations and bounded, well-defined exercises to illustrate key points and develop that understanding. The more unstructured elements required in order to meet relevant standards and level 7 capabilities proved to be more of a challenge, but it was thought that by using case studies to provide a realistic setting, and challenging students to apply their learning and experience in a semi-guided way facilitated by Q&A sessions and ‘thought bombs’ that experiential learning could be fostered in a problem-based scenario.

In adopting this blended strategy, online learning could be facilitated by replacing F2F sessions with ‘live online’ taught sessions, revised to be shorter and more impactful than traditional lectures so as to facilitate student learning given the blockers identified earlier in this paper. Bounded exercises could be replicated by hosting them on a virtual learning environment (VLE) and supporting them with live Q&A sessions. Research tasks could be managed in the same way, with the provision of increased feedback and ideas intended to generate debate amongst the cohort, whilst more unstructured workshops could be facilitated by setting up group areas on the VLE, and managed group ‘online chat rooms’ to foster peer-to-peer study and learning.

This was placed in the perspective of student expectation through both group and individual discussions. Communication was recognized as vital to the process, and ideas were worked through with the cohort to ensure understanding and buy in, whilst individual discussions were held with students to allay concerns, and understand their particular needs and issues when studying at distance. Students were encouraged to speak to staff as relevant (see table 1) as often as they felt as necessary, and additional mentor slots were made available to support students as was needed. Bespoke teaching slots were also made available to cater for student learning styles. So, for example, students who identified as theorists in Honey and Mumford's 1982 classification of learning styles, or who had been out of education for a period of time, were able to book additional teaching sessions to review and discuss taught ideas, whilst pragmatists were likewise encouraged to discuss their ideas for practical application. Where students were concerned at the increased use of IT, they were offered support in ensuring that they understood how to connect with, and access, resources. Moreover, live sessions were recorded so as to afford the maximum level of flexibility to students in managing their studies given the pressures of lock down. In a similar vein, course material was made available earlier than previously to give students more time, and to allow additional time for understanding and asking of questions.

Consultation with students agreed that this provided a basis to proceed, and the offering was then developed as described in Barker (2021). Feedback and experience prompted regular review and update to the delivery mechanism both at module level, and across the wider course.

In addition to the course-based support described in the above paragraphs, tutorial sessions were offered by administrative and support staff to ensure that students were aware of any revisions to processes, and to make sure that the learning process and progression were made as smooth as possible. Students were also encouraged to seek pastoral help should they feel that they needed it, and additional slots were made available specifically to deal with this. Apprentice students were also offered more time with academic and support staff to understand how the revised andragogy for delivery would affect their studies, and to guide them in respect of their apprenticeship path as a result.

## **Results and Outcomes**

As mentioned earlier, the process of delivery and student support was modified and refined in line with student discussion and feedback, and as experienced of the revised mechanism was gained. The key outcomes are outlined and summarized below:

- Take up of learning offerings improved
- Greater student involvement was witnessed
- Improved feedback from students increased and demonstrated approval of the revised course offering
- Maintenance of desired level of quality in teaching and learning
- No reduction in assessment performance
- More coherent module- and course-level educational offering
- Dissemination of practice and outcomes led to enhancement of other educational offerings

## Conclusions and Further Work

This paper describes the efforts of the course team for Cranfield University's Systems Engineering MSc to ensure that students continued to be appropriately supported through changes to the andragogical strategy caused by the coronavirus/Covid-19 pandemic. Blockers to study are analysed in the context of the required andragogical changes, and student motivation and expectations are also considered. The pre-coronavirus structure of the course and support arrangements are also presented, before the methodology for implementing change to the support strategy is described, and its application is discussed. Finally, outcomes are stated.

The work detailed in this paper was highly iterative, and that allowed errors or unsuccessful ideas to be quickly corrected. It was found that different students had contrasting attitudes to online-only teaching, and that continued communication before, during, and after the process of module- and wider course-teaching was essential in allowing students to understand in good time what would be expected of them, how they would be taught, and how they would be supported. Flexibility of teaching and support offerings was also important in the light of pressures placed upon individuals due to coronavirus measures such as working from home. The resulting support structure has been largely successful in use, and has been received well by students as results and outcomes suggest. Pleasingly, no significant drop in student performance in assessment was evidenced.

It must be noted that despite successful implementation, this study covers a limited number of student cohorts, so further work and application needs to be done before the process can be deemed an outright success. Moreover, with additional time to reflect and gather feedback, it is expected that other ideas for improvement will be identified and implemented. A further task will be to propagate ideas and achievements across other courses more fully.

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*Analysis of French Grammatical Errors Using Surface Strategy Taxonomy:  
A Case Study of Thai University Students*

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**Abstract**

This study was aimed to investigate the grammatical errors made by Thai university students and to find out the causes of grammatical errors in French writing. The participants in study were 16 third-year Thai students majoring in French of the Faculty of Archaeology, Silpakorn University. Purposive sampling was used to select the participants. The research instrument was the written final exam of an elective course for French major entitled French for Thai Art of Living and Culture of which five open-ended questions were comprised. After conducting the identification, the grammatical errors of the participants were analyzed and classified through the concept of surface strategy taxonomy and the linguistic categories of grammatical errors. The descriptive statistic including frequency and percentage as well as the content analysis were employed in this study. The research findings revealed three significant main points: 1) There were a total of 643 grammatical errors based on surface strategy taxonomy in which the frequency of misformation was the highest at 58.94%, followed by omission 32.19%, addition 7.93%, and the lowest percentage was shown in misordering 0.93%. 2) In terms of linguistic categories, the most apparent errors were found in word forms 22.55%, subsidiary in verb forms 18.35% and articles 16.95%. The error in subjunctive mode was the least likely to be found only 0.62%. 3) The causes of grammatical errors were found to be interlingual interference, English Interference, and intralingual interference.

Keywords: French Grammatical Errors, Surface Strategy Taxonomy, Error Analysis, Thai University Student

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## Introduction

Error analysis in foreign language learning is much important as it helps find different cases of learners 'mistakes, limits or problems while learning the target language. The found results were brought into solutions as well as errors' reduction. Besides, language learners' error analysis could contribute to in-depth comprehension on the language learning process. It could be useful for instructors and curriculum conductors who work on the development of teaching media, books, manuals and materials together with the improvement of teaching technics in order to be more responsive to learners' limits, needs and specific characteristics. Nevertheless, it should be noted that foreign language teaching in this modern era does not perceive learners' error as a negative factor but as a common process by nature that every learner has to experience (Sritong, 2015; Saengklaijaroen, 2018).

Error analysis is always raised as a co-point within contrastive analysis in order to derive differences between mother tongue and second language or foreign language of learners and to predict possible errors that could occur (Sritong, 2015: 105). Furthermore, one of the popular used concepts for analyzing and grouping errors is surface strategy taxonomy (Dulay *et al.*, 1982). It is currently brought into application especially among grammatical error studies.

Grammar is served as a key tool to achieve the correct sentence and the efficient communication. Thus, grammar is considered as an interesting issue and is taken into account by scholars aiming to develop the pedagogy of a foreign language. However, during the past decade, there were quite few studies about French grammatical errors of Thai learners. Moreover, among their relevant cases, the other previous studies were mostly related to some grammatical errors for example Srisawangsap (2017) investigated errors in French adjective use of the second-year university students while the other study of Charoensit (2019) analyzed errors of French grammatical structures on "modes et temps" among first year university students. Hence, it could be concluded that French grammatical errors study regarding Thai learners still reveal a knowledge gap in research. This study aimed therefore to analyze French grammatical errors under the concept of surface strategy taxonomy in the context of Thai university students learning French as a foreign language. This analysis covers every main category of grammar. In addition, causes of errors including pedagogical implications were also proposed at the end of this study.

## Objectives of the Study

1. To identify and classify grammatical errors made by Thai university students in French writing.
2. To find out the causes of grammatical errors in French writing.

## Theoretical Background

### Error Analysis (EA)

Error in linguistic means the use of a language that its native speakers consider as a mistake and incomplete knowledge (Richards and Schmidt, 2002) while Waelateh *et al.* (2019) concludes "EA is an operation in which the errors made by someone in speech or in writing are detected, recorded and interpreted and information on the specific difficulties that someone has in speech or writing English sentences." Richards and Schmidt (2002) divided

errors into 2 types: 1) Interlingual Error which means the errors transferred from learners' mother-tongue such as those of grammar, vocabulary or pragmatics, and 2) Intralingual Error which means the errors caused by ignorance of target language's rule restrictions, incomplete application of rules and false concepts hypothesized. In part of Tongwanchai (2015), he indicated his objectives of errors analysis comprised of 1) to find out how good is learners' language knowledge 2) to find out what ways learners employ to learn such language and 3) to collect data on significant difficulties in language learning that could contribute to language teaching as well as teaching media preparation.

### **Surface Strategy Taxonomy**

James (1998) conceived the definition of "taxonomy" as a science that regards categorization. This term must possess certain constitutive criteria. Within language error analysis, there are many types of error taxonomy. However, surface strategy taxonomy (Dulay *et al.*, 1982; Sritong, 2015) is mostly used as a concept to apply in study.

Surface strategy taxonomy focuses on the study of the form distortion that are divided into four following sorts:

1. Omission is an absence of an item that makes a sentence incomplete and causes a problem on the comprehension of such sentence. Mostly, learners frequent such mistake in grammatical morphemes more than in content morphemes that express the meaning for instance the omission of article, verb to be or -ing form after the verb that makes the sentence grammatically wrong.
2. Addition is a presence of an unnecessary item in a sentence. Such case is divided into three kinds: 1) double marking for example "We didn't went there." 2) regularization such as the use of past form of the verb "eat" in "eated" and 3) simple addition such as general misspelling cases not linked to those of double marking or regularization.
3. Misformation is the error that occurs by the use of wrong form of the morpheme or structure. It is comprised of three kinds: 1) regularization errors such as "himself" malformed into "hisself" and "children" into "childs" 2) archi-forms that happens in the selection of subject pronoun for example, "Give me that. Me hungry." 3) alternating forms that is caused between learners' vocabulary knowledge and their grammatical developing process. This leads into confusion during the use of the language such as the use of "they" instead of "it", "he" instead of "she" or the misconception of part of speech like between "her" and "she".
4. Misordering is the incorrect placement of a morpheme or group of morphemes for example, "He is all the time late." "All the time" is placed in the wrong position. Another example, "What Daddy is doing?" there is a misordering between "Daddy" and "is".

As this taxonomy presents clear criteria, the researcher could study errors and categorized them following the aimed target.

### **Methodology**

#### **Target Group**

Using purposive sampling, the target group of this study was 16 third year students majoring French in the Faculty of Archaeology, Silpakorn University, Thailand and enrolled in French for Thai Art of Living and Culture course during the 2<sup>nd</sup> semester of the academic year 2020. This group of students had acquired experience in French language study for 5 years: 3 years

in high school and 2 years in university. Besides, they had accomplished at least four courses of French grammar study at the university level.

### Research Instrument

The used instrument for data collecting of this investigation is the final exam subject test of French for Thai Art of Living and Culture course, which includes five questions with the allotted time of 1.30 hours. The use of dictionary was not allowed during the exam.

### Data Collecting and Analysis

The researcher collected the data from his own 16 course final exams that were corrected by researcher team. All found errors were sorted by four surface taxonomy criteria: 1) omission 2) addition 3) misformation and 4) misordering. Furthermore, the categorized errors were then analyzed and discussed according to nine linguistic categories of grammatical errors (Sritong, 2015) as follows: 1) verb forms 2) word forms 3) preposition 4) articles 5) agreement of modifiers of nouns 6) sentence fragment 7) subjunctive mode 8) subject-verb agreement and 9) word order. The analysis was conducted by using descriptive statistic including frequency and percentage. Content analysis was also employed.

### Results and Discussion

According to 16 subject tests, the study result following surface taxonomy found in total 643 grammatical errors. Those of misformation were revealed 58.94% as the most. Its subsidiary was orderly shown by 32.19% of omission, 7.93% of addition and 0.93% of misordering. Considering among grammatical categories, the errors in word forms occurred the most as rated in 22.55% while verb forms showed 18.35% and articles 16.95%. The least was shown 0.62% in subjunctive mode (see Table 1). Moreover, by cross analysis, the errors associated with word forms occurred the most in the categories of omission, addition and misformation whereas misordering co-appeared only with word order.

Types of errors	Omission	Addition	Misformation	Misordering	Total	Percentage
Verb forms	26	10	82	0	118	18.35
Word forms	40	15	90	0	145	22.55
Prepositions	39	7	33	0	79	12.29
Articles	39	5	65	0	109	16.95
Agreement of modifiers of nouns	33	7	57	0	97	15.09
Sentence fragment	26	5	11	0	42	6.53
Subjunctive mode	0	0	4	0	4	0.62
Subject-verb agreement	4	1	37	0	42	6.53
Word order	0	1	0	6	7	1.09
<b>Total</b>	<b>207</b>	<b>51</b>	<b>379</b>	<b>6</b>	<b>643</b>	
<b>Percentage</b>	<b>32.19</b>	<b>7.93</b>	<b>58.94</b>	<b>0.93</b>		<b>100.00</b>

Table 1: Frequency of Grammatical Errors Classified by Surface Taxonomy and Grammatical Categories

This following part presents examples of errors for each category.

### 1. Misformation

Example 1: « *Le brahmane invite le génie protecteur à la maisonnette aux esprits qui faire face à l'est.* » This sentence shows misformation at the verb « faire » that is not conjugated following the noun or the subject in front of it. According to French grammar, the first verb must be conjugated in harmony with subject. This error corresponds to verb forms in grammatical categorization. The correct sentence should be « *Le brahmane invite le génie protecteur à la maisonnette aux esprits qui fait face à l'est.* »

Example 2: « *Le premier fois de Wai, c'est pour montrer le respect au Bouddha.* » This sentence possesses an error of structure at « le premier fois » as the use of the words' gender does not correspond to its modified noun. In French, a noun has its gender and its modifiers such as article and adjective must be formed in accordance with its. This error relates to articles and agreement of modifiers of nouns. Thus, the correct sentence should be « *La première fois de Wai, c'est pour montrer le respect au Bouddha.* »

### 2. Omission

Example 3: « *Normalement, on peut trouver le Nam Prik est la sauce brune.* » This sentence still lacks of a relative pronoun, which is the subject of the subordinate clause and modifies the word « Nam Prik ». Following French grammatical rule, the word « qui » must be used to complete the missing part. This error relates to agreement of modifiers of nouns. Thus, the correct sentence should be « *Normalement, on peut trouver le Nam Prik qui est la sauce brune.* »

Example 4: « *Le Khon est la danse masquée qui est origine indienne.* » This sentence is classified in the omission group as there is an absence of the preposition « de » in front of the word « origine ». In French, it is the expression « être d'origine + adjective of nationality ». This error is linked to the use of prepositions. Thus, the correct sentence should be « *Le Khon est la danse masquée qui est d'origine indienne.* »

### 3. Addition

Example 5: « *La croyances de Krathong est tenue pour que les mondes se font pardonner par la déesse de l'eau.* » In this sentence, three errors are found regarding addition and misformation. The first one is the word « croyances » with an unnecessary additional « s ». As it is preceded by the definite article « la », which is singular and its verb is conjugated in singular form, this noun does not need « s » that is a sign of plural. The word « les mondes » that signifies « people » is usually used in singular form. Thus, its article should be « le » and there is no need to put « s » at the relevant noun. These two errors are linked to noun forms in grammatical categories. The last point regards misformation. The word « pour que » must be followed by subjunctive mode. Hence, the conjugated verb « font » must be « fasse » that is also singular instead. The correct sentence should be « *La croyance de Krathong est tenue pour que le monde se fasse pardonner par la déesse de l'eau.* »

Example 6: « *La bougie et les bâtons d'encens dans les Krathongs ne sont pas éteintes.* » This sentence has its error at the word « éteintes » in which there is no necessity to put « e » before « s ». This word is in « participe passé » or past participle form that must correspond

to its subject according to French grammar. The subject in this sentence is comprised of two nouns, which are different in terms of gender as « bougie » is feminine singular while « batons » is masculine plural. In this case, the subject is considered as masculine plural. Thus, « participe passé » or past participle must correspond to the masculine plural noun by representing only « s » at its end. This error is associated with subject-verb agreement. Therefore, the correct sentence should be « *La bougie et les bâtons d'encens dans les Krathongs ne sont pas éteints.* »

#### 4. Misordering

Example 7: « *Un match dure cinq minutes : pour se battre trois minutes et pour faire une pause deux minutes.* » In this sentence, the ambiguity appears because of its misordering. This error involves word order in grammatical categories. The correct sentence should be « *Un match dure cinq minutes : trois minutes pour se battre et deux minutes pour faire une pause.* » When the words are rearranged, the sentence becomes smoother.

Example 8: « *Dans le passé, il y avait beaucoup de secret recettes pour chaque maison.* » This sentence shows the error at the word « secret », which is considered as an adjective. In general, adjectives are placed at the back of noun in French. The word « secret » should be then placed after the word « recettes ». Apart from that, the error is also linked to agreement of modifiers of nouns. As the word « recettes » is a feminine plural noun, the adjective « secret » should be modified into « secrètes » in accordance with it. Hence, the correct sentence should be « *Dans le passé, il y avait beaucoup de recettes secrètes pour chaque maison.* »

According to the demonstrated findings, it could be discussed that the ranking of errors in each category of French grammar discovered in this study corresponded well to the one of Jiamin *et al.* (2020). His result revealed that in the use of English prepositions, Chinese students committed most of their errors in terms of misformation followed by omission, addition and misordering respectively. The study indicated that the causes of prepositional errors were found to be interlingual interference, intralingual interference, and insufficient input of the target language.

Moreover, the study of Sritong (2015) showed the same kind of findings. In other words, Thai students leaning Spanish committed grammatical errors in terms of misformation as the most followed by omission, addition, misordering respectively. Its results reflected the causes of errors that came from 1) interference from L1 and L2 and 2) difficulty about coherence and cohesion of student's writing ability.

Considering from linguistic categories of grammatical errors, the most common errors were found in word forms while their subsidiaries occurred in verbs forms. Both forms of errors appeared in taxonomy of misformation as the most. These findings are different from those of Sritong (2015) showing that Thai students who learned Spanish committed most of the error cases in verbs forms and word forms as the second most. In terms of verbs forms, the majority of errors were found from verbs' conjugation, omission and wrong tenses. Meanwhile, those in word forms were detected from the missing of some consonants and vowels, which malformed words.

## Conclusions

The results of this study revealed that word forms in French caused the most obstacles for Thai learners. The cause of such problem might be due to the French particularity in terms of its nouns that must change form following their gender and number. Among French nouns, the genders are sorted by masculine and feminine. In several cases, we could make a masculine noun into feminine by modifying the last part of the word. Most nouns could be added “s” in order to make them plural. By the way, there are also many nouns that could be made plural apart from adding “s” or even need to have their form totally changed. Although, such modification has its rule, there are still several exceptions. As this special characteristic does not exist in Thai language, there are numerous cases of wrong usage among Thai learners. Besides, the errors in word forms were committed by misspelling or using English spelling ways instead of French. This factor reflected the influence of English that Thai students learn as the first foreign language. The occurrence of numerous errors in word forms might be due to learners’ needs of nouns use more than other kinds of word in writing.

In terms of subjunctive mode, it was found as the least among errors. Such result was completely different from the finding of Charoensit (2019) indicating that the most numerous error made by students majoring in French was le subjonctif présent. This point could be explained that the research instrument of Charoensit (2019) was the exam that assessed directly French grammar and in which the questions regarded precisely subjunctive mode while for the one of this study, the sample group had autonomy to form their own sentences as well as to select grammar use for their answers in the exam. Thus, according to the findings of this study, it could be stated that the sample group does not have good comprehension and could not frequently make sentences in subjunctive mode. As a result, the use of such structure appeared quite few in the exam and brought into the least finding of its errors. It could be implied that subjunctive mode should be given importance and emphasized for the competency development in French grammar usage.

One important limitation of this study is that there are still quite few studies on grammatical errors between French and Thai. Hence, the comparison regarding its results with other works could not be conducted yet.

## The Causes of Grammatical Error

According to the results of this study, the causes of errors were shown as follows:

### 1. Errors Caused by Interlingual Interference

Interlingual interference, also called native language (mother tongue or L1) interference is the main cause of grammatical errors in foreign languages that occurs in every linguistic study (Patiyasevi, 2018; Saengklaijaroen, 2018; Chamtakong, 2019; Charoensit, 2019) including this one. Such interference is caused by the different grammar between L1 and L2 or foreign language as well as could lead into negative transfer. In other words, learners take up the grammatical knowledge of L1 to use in the writing of L2 or foreign language. Brown (2000) stated that for language learners, before the system of the second language became familiar, the native language was the only reliable linguistics system upon which they could use for reference in the early stage of learning a foreign language. Therefore, when a learner wants to express his complex ideas, the thoughts in the mother tongue would inevitably interfere his communication. For this study, Thai and French are originally and topologically different.

Hence, it is possible that a learner uses the sentence structure or grammar of his familiar mother tongue in French communication and could be led into language errors.

## **2. Errors Caused by English Interference**

English interference is another factor that causes French grammatical errors (Srisawangsap, 2017). The majority of university students in this generation had started learning English since their kindergarten level while French was debuted only in high school level. Thus, learners are more familiar with English. Sometimes, they use English structure or grammar in French communication. Although both languages possess some common parts or similarities, they have certainly also some differences. This results errors in French grammar usage of Thai learners.

## **3. Errors Caused by Intralingual Interference or Intralingual Errors or Influence of the Target Language**

Intralingual interference is also another factor that was found from the analysis of this study. According to Ellis (2015), the errors were caused by the influence of the target language during the language learning process. In other words, such errors were originated by incomplete learning of L2 rules. In terms of French language, it is well known that its grammatical rules are very difficult and complicated. Once learners are lack of the exact knowledge of French grammatical rules and its exceptions, it could lead into errors (Patiyasevi, 2018; Saengklaijaroen, 2018; Charoensit, 2019). This could be portrayed in overgeneralization of the rules and deviant structures production in French writing. Besides, some expressions might have similar structure but they are different in meaning. This makes learners conceive sentence ambiguity and makes readers grasp difficultly the main idea of sentence (Jiamin *et al.*, 2020).

## **Pedagogical Implications**

In the following part, this study put forward implications of error analysis as well as some suggestion about French teaching and learning.

1. As the influence of mother tongue is the main factor that affects the target language and causes errors, the reduction of interlingual interference could be a very useful guideline for learners. Instructors could explain the differences of grammar between L1 or target language, which means Thai and French in this regard, in order to make learners realize such point and take it into account when conducting writing or various kinds of communication. Furthermore, instructors including educational institutes should create an environment for French learning in order to form a foreign language sense.
2. In regards of errors caused by intralingual interference, instructors could bring found errors to develop into parts of content for pedagogical management by attributing additional in-depth explanations as well as relevant lessons to errors and learners' problematic topics.
3. Encouraging learners to participate in learning process and to correct their own mistakes could contribute more efficiently to the development of learners' writing skill.

## **Suggestions for Further Research**

The current study was brought into some recommendations as follows:

1. The study could be investigated in a larger scale of sample group in order to conceive a clearer picture of errors. The subjects can be selected from different universities and chosen from different grades.
2. As this study analyzed the data from students' writing works, errors analysis in French speaking could be further investigated in the future.
3. Additional studies about communication contexts such as formal and informal communications, the decency of vocabulary use in different situations regarding occasion and culture in communication should be conducted as only the accuracy in grammar does not make communication achieve objectives.

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## *Paragraph Writing Instruction for University Students*

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### **Abstract**

As the emphasis is placed on students' practical abilities in English, the communicative approach, which focuses on students' "productive abilities," has been encouraged in Japan. However, this approach has resulted in a low level of basic writing skills, which are often associated with insufficient vocabulary and grammatical knowledge. Considering the current practices of writing instruction in junior high and high school, students translate word by word, following grammatical rules. They have little experience in free writing projects in which they describe their ideas or thoughts. Even under such circumstances, paragraph writing has gained popularity at the tertiary level. It is often reported that writing paragraphs is difficult for many college students. This research was conducted as a preliminary study to serve as a foundation for building effective writing instruction. To plan, implement, and evaluate appropriate writing instruction, a needs analysis should first be performed. This study involves 83 first year and 93 second year college students. The questionnaires are aimed at examining their knowledge and experience of English writing. The data are analyzed through SPSS, providing descriptive and correlational analyses. The results reveal that most students have inadequate knowledge of sentence components, which hinders their construction of paragraphs. Moreover, most have not had any free writing experience in the course of their education. This study suggests that before writing a paragraph, students should participate in numerous free composition activities designed to involve their cognitive and social knowledge.

Keywords: Paragraph Writing, Needs Analysis, Paragraph Writing Instruction

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## Introduction

The Ministry of Education, Culture, Sports, Science and Technology (MEXT) in Japan emphasizes the need to enhance English language education in accordance with globalization trends. The Course of Study for English Education (the curriculum prescribed by MEXT) has been tailored to promote students' practical abilities through a communicative approach. However, recent nationwide English testing targeting 60,000 third-year junior high school students revealed that less than 30% met the English proficiency standards set by MEXT. Moreover, in the written section of the test, approximately 20% students scored zero. The use of a communicative approach has thus resulted in students having poor skills in basic reading or writing, often associated with a lack of vocabulary and grammar knowledge. The Benesse Corporation (2016) also reported that writing instruction is insufficient. Similarly, Kamoshita (2010) argued that students' limited vocabulary and grammar knowledge hinders their ability to form sentences that express their ideas or thoughts. The new Course of Study for English Education has been successively implemented from the elementary to high school curriculums in 2020, focusing on strengthening students' "productive abilities." The English curriculum is designed in keeping with the growing need for the written skills that are integral to international communication.

## English Writing Instruction in Japan

Previous studies have reported that junior high and high school students are trained to translate English word for word, while ensuring that they follow the rules of grammar (Kobayakawa, 2011; Matsuda, 2019). Kobayakawa (2011) analyzed writing tasks in high school textbooks and found that these were mainly controlled and fill-in-the-blank translation tasks. Nakagawa (2017), who studied the features of paragraph writing tasks in Japanese senior high school English textbooks, found that they focused mainly on grammar activities. Therefore, students have limited free writing experience enabling them to describe their ideas or thoughts during the junior high or high school years. In contrast, paragraph writing has gained popularity at the tertiary level. Nakagawa (2017) reports that college writing textbooks varied from English composition at the sentence level to writing multiple paragraphs and academic essays. The gap between high school and college writing instruction thus causes serious issues: College students often report difficulties in writing paragraphs, and many students at the tertiary level lack the understanding of paragraphs or concepts of paragraph structure. They often confuse the concept of "danraku," which is defined as "a major division in a long passage" (Shinmura, 2001) and which has unclear rules or requirements, with that of "paragraph," which follows specific rules of formation. Additionally, some studies have shown that Japanese writers experience difficulty in using connectors, and revisions that include feedback often lack instructions. Therefore, it is crucial that supportive writing instructions be developed to bridge the gap between high school and college writing instruction. As Oi (2014) emphasizes, it is important to implement writing instruction that can serve as a bridge between sentence-level writing and paragraph writing.

The literature review found that university students find it difficult to write a paragraph. These students have limited knowledge of English grammar, vocabulary, sentence structure, and paragraph writing. This study presents paragraph writing instruction designed based on a needs analysis targeting students with low proficiency in a small private university.

## **Purpose of the Study**

There are two purposes of this study. First, it presents the results of a needs analysis that formed the basis of the design of the paragraph writing instruction; and second, it describes and discusses the implementation and evaluation of the paragraph writing instruction.

## **Context and Participants**

This study was conducted in an English writing course at a four-year university that targets students aiming to work in fields of rehabilitation and welfare. Their English proficiency is considered quite low. About three-fourths of the students entered the university without taking any English exams, and the placement test confirmed that over half were underprepared. English is a required course for the first- and second-year students, which includes the content-based ESP (English for the specific purpose) approach. In this context, paragraph writing instruction is allocated to 2 sessions.

## **Methods**

To achieve the first purpose, a survey and sentence quiz were administrated as described below.

Aims include: ① To identify students' experience and perceptions of writing and ② to identify students' knowledge of sentence and paragraph writing.

The sample included 91 first-year students and 82 second-year students.

Survey: The questionnaire was administrated in two parts. The first part consisted of 12 questions, including multiple-choice questions, items scored on a Likert scale, and open-ended questions, to gain information on students' perception and experience. The second part included a quiz designed for the recognition of sentences. Here, 12 English texts, including 4 sentences and 8 phrases, were presented to the participants. These sentences examined the students' understanding of sentences and phrases. In the survey analysis, SPSS was used to describe the numerical presentation, distributions, frequency, and correlations.

For the second purpose, the process of designing the paragraph writing instruction, instruction was implemented in two sessions, an overview of students' work and self-evaluation of the instruction.

## **Conclusion**

The current study introduced paragraph writing instruction based on a needs analysis. The results of the needs analysis and the process of design, implementation, and evaluation of the students' product and of the instruction are described in the following section. The paper concludes with a discussion and the implications of the study.

## **Results of the Needs Analysis**

The followed figure (Figure 1) shows students' perception of English writing.

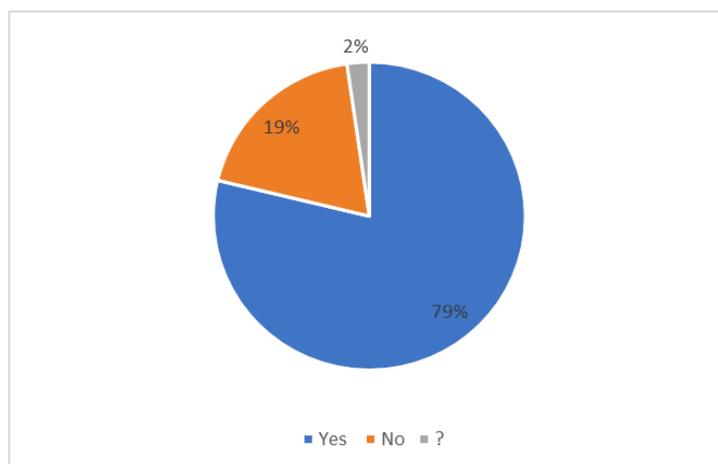


Figure 1: Aversion to Writing

Students responded to questions about any negative feelings, including being uncomfortable writing English, lacking confidence in English writing, or disliking writing. Close to 80% claim that they have such negative feelings toward English writing.

The following two charts (Figure 2) show students’ experiences of free writing and paragraph writing activities.

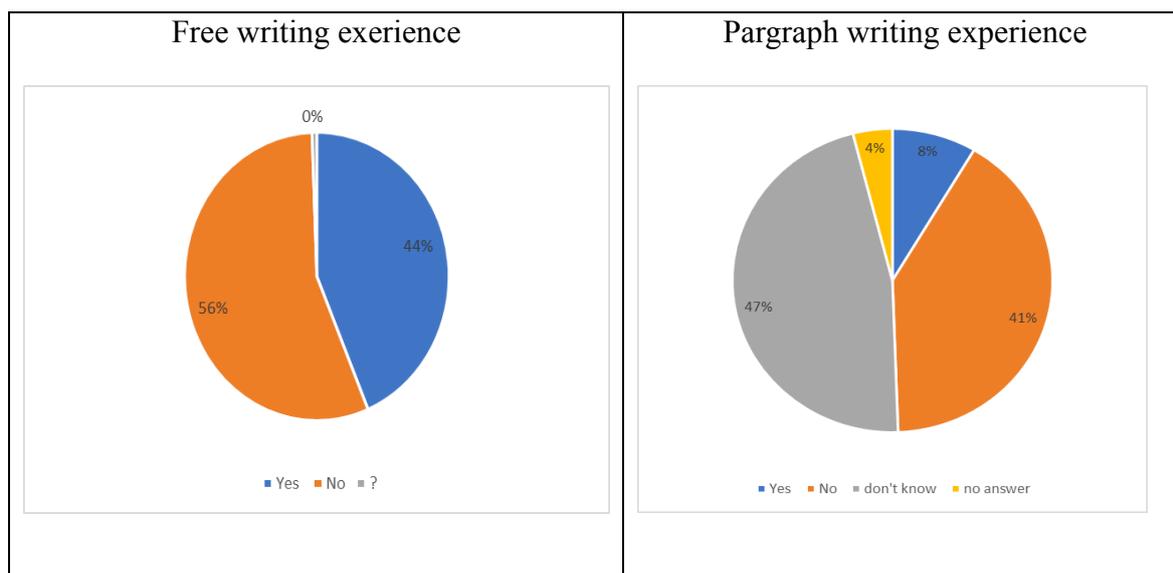


Figure 2: Students’ Writing Experience

The left chart shows students’ experience with free writing activities. Over half (56%) had not had experience of such activities in previous levels of education, while 44% claimed that they had free writing experience where they were required to create a sentence (instead of merely providing a translation). The second chart, regarding paragraph writing experience, shows that 8% had experience of such an activity, and 47% reported that they did not know what a paragraph was.

The following figure (Figure 3) shows students’ experience of writing product feedback.

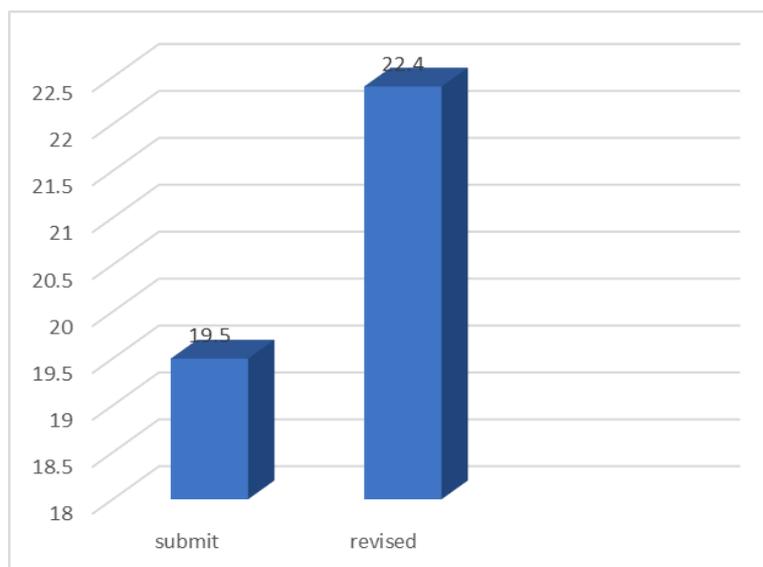


Figure: 3 Feedback

Among students who were involved in the writing activities, only 19.5% submitted their writing product to the teacher. Among them, 22.4% said they had received some sort of feedback on their writing.

The following two tables (Table 1, Table 2) show the results of correlational analysis.

		Feeling of Aversion	Experience	Correct	Incorrect
Feeling of Aversion	Pearson correlation	1	.486**	-.123	.128
	Sig. (2-tailed)		.000	.107	.092
	<i>N</i>	174	174	173	173
Experience	Pearson correlation	.486**	1	-.131	.110
	Sig. (2-tailed)	.000		.085	.150
	<i>N</i>	174	174	173	173
Correct	Pearson correlation	-.123	-.131	1	-.141
	Sig. (2-tailed)	.107	.085		.064
	<i>N</i>	173	173	173	173
Incorrect	Pearson correlation	.128	.110	-.141	1
	Sig. (2-tailed)	.092	.150	.064	
	<i>N</i>	173	173	173	173

\*\* p < .001

Table 1: Correlational Analysis 1

As evidenced in Table 1, a moderate correlation (-.486, p < .001) was also found between students' aversions toward English writing and their experience of writing. When students do not have free writing or paragraph writing experience, they develop a feeling of aversion toward writing. In contrast, no correlation was found between their feelings toward writing and the sentence quiz results or between their writing experience and quiz results.

		Correct	Incorrect	Understanding of paragraph	Paragraph writing experience
Correct	Pearson correlation	1	-.141	-.134	-.065
	Sig. (2-tailed)		.064	.080	.394
	<i>N</i>	173	173	173	173
Incorrect	Pearson correlation	-.141	1	.128	.089
	Sig. (2-tailed)	.064		.094	.246
	<i>N</i>	173	173	173	173
Understanding of paragraph	Pearson correlation	-.134	.128	1	.528**
	Sig. (2-tailed)	.080	.094		.000
	<i>N</i>	173	173	174	174
Paragraph writing experience	Pearson correlation	-.065	.089	.528**	1
	Sig. (2-tailed)	.394	.246	.000	
	<i>N</i>	173	173	174	174

\*\*  $p < .001$

Table 2: Correlational Analysis 2

As evidenced in Table 2, a moderate correlation ( $-.528, p < .001$ ) was found between students' understanding of a paragraph and their paragraph writing experience. However, no correlations were found between students' understanding of paragraphs and their sentence recognition quiz scores, or between their paragraph writing experience and the results of the sentence recognition quiz.

### Sentence Quiz Results

In the sentence recognition quiz, students were asked to find four examples that could have a sentence structure. None of the students chose all correct answers; 12.6% chose three sentences, followed by 28.7% who chose two. Also, 75% of the students considered imperative sentences with exclamation marks to be phrases, and 91% considered one-word imperative sentences to be phrases. Moreover, 54% thought the phrase "while he was looking for her" was a sentence.

### Designing Paragraph Writing Instruction

Based on the findings of the needs analysis described above, the following points were taken into account when designing the writing instruction.

1. A majority had low English proficiency and many students did not possess the knowledge of sentence structure. Therefore, the activities should include easily read paragraph examples with simple sentences. Students also need practice to create sentences. In addition, the use of PowerPoint is necessary since some low-proficiency students need to see the written forms of all English terms for a clear understanding.
2. Close to 50% of the students did not know what a paragraph is. Therefore, the instruction has to deal with the basics of paragraphs, including the structure and components of paragraph and their roles, and simultaneously teach the use of connectors.
3. Students need to explore several examples of paragraphs, as the concept is new to many of them.
4. Various kinds of exercises should be prepared to enable students to apply their new learning in practice.

5. Since they had not experienced feedback on their writing, they had little revision experience. To address this with a step-by-step approach, a check sheet that describes all requirement points should be prepared. Through pair work and the teacher's feedback, they should learn how to revise their exercises.
6. Maximizing learning within the limited hours allocated for paragraph writing instruction should be considered. Involving homework and feedback from an instructor outside the classroom should be included.

### **Implementation of the Instruction**

The following is the implementation procedure of the paragraph writing instruction.

#### **1st Session**

1. Explain what the paragraph is. (use PowerPoint and handouts)
  - Show examples of various paragraphs
  - Explain organization
  - Explain components (topic, supporting, and concluding sentences) and their roles
  - Introduce connectors
2. Provide pre-writing activities (have students explore various kinds of exercises to construct their basic knowledge)
  - Reading sample paragraphs aloud
  - Find the components (topic, supporting, and concluding sentences) of a paragraph
  - Create a topic sentence, supporting sentences, and a concluding sentence in example paragraphs
  - Create missing sentences to complete a paragraph
  - Sentence scrambles to complete a paragraph
  - Practice using connectors
  - Write a topic sentence for the paragraph writing topic "My summer vacation"

#### **Homework**

Students have to write a paragraph in the following manner.

1. Create the topic sentence (1 sentence)
2. Consider supporting sentences (3–4 sentences)
3. Write (a) concluding sentence(s) (1–2 sentences)
4. Organize a paragraph using connectors.
5. Think of an appropriate title for the paragraph.

Then they should make a copy of their assignment for peer review, which will be used in the second session.

## **2nd Session**

### **Peer Review**

Provide a check sheet for paragraph writing that students can go through following step-by-step processes to check (evaluate) a paragraph. This includes organization, components, connectors, vocabulary, and grammar

Have students read through a check sheet

Pair work for review (use the copy made for homework)

Provide scaffolding (monitor activities/provide suggestions/answer students' questions/give them feedback. etc.)

Students revise and submit the final version.

### **After the 2nd Session**

Providing teacher's feedback

After the class, students' paragraphs were evaluated and feedback is provided.

Students' paragraphs were returned and they were encouraged to submit their revision if they wished.

## **Evaluation of Students' Assignments and the Writing Instruction**

### **Students' Assignment**

It seems most students could write a paragraph with every component. They followed the rules while organizing their paragraphs with all the necessary components. However, a few students faced problems with the format, beginning each sentence on a new line. A few students also had very little understanding of the connection between the topic sentence and the concluding sentence, and introduced new ideas in the last sentence. Some students were able to use appropriate connectors, while others had difficulty using them. Other points noted included 1) some use of translation software that created awkward sentences, and that 2) many students' writings were ordinal, followed similar patterns, and showed little creativity. As a result, their paragraphs were developed logically, but were not attractive.

### **Activities**

Prewriting activities involving various kinds of exercises are believed to enhance students' understanding of the paragraph and its components and organization. Application and repeated use of their knowledge in different forms are believed to enhance their understanding.

In terms of the peer review activity, students were actively engaged in paired feedback. Reviewing others' work using a checklist allowed students to go through step-by-step reviews. They could therefore examine if their own or their partner's work fulfilled the requirement

for a paragraph. They also checked grammar and spelling, and questioned the instructor when they were not sure. Such activities can thus promote their audience awareness as well as recognition of the importance of revision.

## **Discussion**

Designing paragraph writing instruction requires careful examination to a needs analysis to enable the instruction to match students' skills, knowledge, and previous experience. The needs analysis performed for this study revealed that most students seem to have inadequate knowledge regarding sentence components, thus making it difficult for them to distinguish between sentences and phrases. Moreover, most students had not experienced free writing earlier in their education. In terms of paragraphs, about half of the students claimed to never have heard of the word "paragraph," whereas only 8% of students had paragraph writing experience in previous educational settings. Therefore, the paragraph writing instruction first introduced the basics of the paragraph, its organization, its components, and their roles. Concurrently, students were asked to explore various kinds of paragraph samples to recognize the components and structure of paragraphs.

The sudden introduction of paragraph writing to students with low English proficiency level may not be adequate or effective in improving their writing skills. Many students may not even be able to produce sentences with which they can express their thoughts or ideas. Therefore, in pre-writing activities, sufficient opportunities should be given for students to practice producing sentences. These activities are believed to help students build the basic skills required to write sentences and gain knowledge regarding vocabulary and grammar. In such pre-writing activities, students activate their learned knowledge of sentence and paragraph building, and the application and repeated use of their knowledge in different forms are believed to enhance their understanding.

In terms of peer review activity, using a check sheet could help students go through the step-by-step reviewing process. While reviewing their works in pairs, students can also be reassured about their own production by thinking whether it meets the criteria. During this process, students also learn how to recognize readers and understand their responsibilities as writers. Careful monitoring of each group activity should also be done. Providing appropriate and effective scaffolding, including giving advice and answering individual questions, is key to improving students' writings.

## **Implications**

Overall, the instruction seems to have yielded successful results, with most students acquiring the knowledge and skills to produce a paragraph. This paragraph writing instruction involves a step-by-step approach and a learner-centered approach. Students are actively engaged in various activities throughout the sessions. However, the following two issues arose when examining students' work. First, some students exhibited difficulty in using effective connectors that could produce better paragraphs. Therefore, introducing more activities in which students can consider and practice the appropriate and effective use of connectors should be prepared. Second, it was also found that many writings were ordinal, followed similar patterns, and showed little creativity. As a result, even though the paragraphs were developed logically, they were not attractive. Therefore, it is a critical challenge to understand how to involve students' cognitive and social knowledge in writing instruction.

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## *The Use of a ClassPoint Tool for Student Engagement During Online Lesson*

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### **Abstract**

Teaching online can be quite different than in the classroom where instructor can physically interact with the students. With the aim to encourage student engagement and learning, a synchronous Classroom Response System called ClassPoint was implemented together through live video conference platform for some first-year undergraduate courses in SUTD as it allowed real-time interaction between the instructors and students. ClassPoint allows instructors to quickly integrate interactive quizzes in their existing Microsoft PowerPoint slides and deliver these questions without the hassle of switching to another application during teaching. Since ClassPoint was only developed in 2015, there is limited literature available on its effectiveness as an engaging tool during lesson. In this study, instructors' and students' experience in using ClassPoint in both physical and virtual lesson was examined. This paper will share some of the benefits and drawbacks of using the ClassPoint tool compared to other CRSs and its operating system compatibility. Survey results showed that more than 80% of the students' participants felt that ClassPoint was an effective platform to promote students' engagement and participation in class. All instructors' participants agreed (60% agreed and 40% strongly agreed) that students tend to respond more frequently to interactive quizzes delivered via ClassPoint than reply verbally in class. Overall, the instructors and students enjoyed the use of ClassPoint as it does promote student engagement during both online and physical lessons.

Keywords: Classroom Response System, ClassPoint, Student Engagement, Online Lesson

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## Introduction

In every classroom, there are students who always have their hands raised to participate, and those who are hesitant to engage. It can be difficult to bring students who are reluctant to add their voices into discussions especially during online lesson. The use of Classroom Response System (CRS) with clicker technology has been a popular teaching strategy to facilitate student engagement, offering instant and formative assessment during class (Fies & Marshall, 2006; Kay & LeSage, 2009). Its rapid feedback on students' response allows instructor to monitor and assess students' understanding on the lesson content instantaneously (Caldwell, 2007). Thereby giving the opportunity to the instructors to elaborate on the concepts students did not understand. Recent advancements in technology and device accessibility have made it easier to implement CRS in the classroom. Technologies now include mobile devices and computer based CRSs such as Kahoot!, Mentimeter, Learning Catalytics etc. A CRS allows instructors to key in questions to the system before the lesson and deliver them during lesson which students can answer using their own electronic devices. Most of the CRS allows anonymous response which helps to motivate shy and hesitant students who would otherwise not participate in class activity. According to Burns (1985), students' attention span lasts approximately 20 minutes, and therefore, introducing CRS in between lessons could also help to break up long presentation and process the content they just learnt.

Students tend to engage less in online learning environments than in face-to-face learning environments primarily due to the absence of physical connection between instructors and students (Cho & Cho, 2014). The physical disconnection between instructors and students presents deficiency of rich communication that drives student to participate efficiently and persistently in online lesson (Leeds *et al.* 2013). Digital platforms can create additional communication barriers between the instructor and student by not being able to engage through a person's body language and facial expression. At Singapore University of Technology and Design (SUTD), Learning Catalytics has been used to facilitate learning of some undergraduate courses. While this interactive response tool has been quite effective in monitoring students' attendance and class participation, it requires instructors to access an additional platform to input and deliver the questions which can be quite inconvenient during classroom recitations. This challenge escalated further during the Covid-19 pandemic with the sudden shift from face-to-face teaching to virtual lessons. With the aim to mitigate some of these challenges during online teaching, an alternative CRS called ClassPoint was integrated in some first-year undergraduates courses at SUTD together through live video conference platforms. Students can join ClassPoint without the need to download any software or logging into the Learning Catalytics platform. In this study, we examined the instructors' and students' perspective on the effectiveness of ClassPoint tools in promoting student engagement with instructor in the class.

## Methods

### (A) Overview of ClassPoint

ClassPoint is a Classroom Response System that can be embedded in Microsoft PowerPoint allowing users to turn their existing slides into an interactive presentation and seamlessly deliver quiz questions within PowerPoint without the hassle of switching to another application during teaching. ClassPoint includes several mode of questions, including multiple-choice question, short questions, quick poll to name a few. In addition, ClassPoint has features that enable instructors to add unlimited whiteboards during slide show as well as annotate the slides,

the students can use either their smart-phone or computer-based devices to participate in the quizzes as well as follow along the instructor slide-presentation. They need to use the browser, <http://classpoint.app>, enter the classcode and create a username that would be used throughout the lesson. The use of ClassPoint in SUTD for some courses is a supplement to the traditional teacher-centered lecture setting that promote student engagement by allowing the students to demonstrate their learning progress and knowledge in a fun and interactive way. In some undergraduate courses in SUTD, students' responses are not counted as part of the course assessment. In contrast, there are some undergraduate courses, where students' responses to the quizzes counted towards participation points and attendance.

## **(B) Protocol for measuring the Effectiveness of ClassPoint**

For this particular study, ClassPoint was used for a mathematics course designed for the first-year undergraduate students at SUTD. Students were informed of the use of the ClassPoint application at the commencement of the course. At the start of each class, ClassPoint's class code was provided to students to join and participate during the cohort class lesson. Students were encouraged to join and participate in the embedded quizzes or polls. Delivering lesson materials, ClassPoint participation, in-class polls, homework, assignments and tests for the courses were carried out as normal, without any intervention from this study. There were two surveys conducted for this study in order to receive students' as well instructors' perspective on the effectiveness of ClassPoint. Both the surveys were voluntary in nature.

- (1) An anonymous online questionnaire survey was conducted with instructors who have the experience in using the ClassPoint for their class. The invitation for this survey was not only extended to the mathematics instructors but also to instructors for other courses who have used this tool.
- (2) An anonymous online questionnaire survey was conducted with students at the end of the term. Some of the students had the privilege of experiencing ClassPoint in other courses as well, and have indicated that in the survey.

## **Results and Analysis**

### **(A) Students' Perception: Usage of ClassPoint**

A total of 46 students participated in this study. 37 students (80% of the participants) have had experience using ClassPoint in both online and face-to-face class mode; while the remaining 9 students only have had experience of ClassPoint conducted in either one of the class modes.

In an open-ended survey question, students had to indicate CRS they have used besides ClassPoint and explain which one they prefer. Only 43% of the participants indicated that they have used other CRS. This is a low percentage considering CRS has commonly been used at higher education institutions (Mu & Paparas, 2015). This batch of student participants came from pre-university, which is a plausible reason as to why they were not exposed to CRS as part of the assessment tool used in classroom. However, 82% of the participants have previously used Kahoot! while the remaining 18% used Quizizz, Padlet and Socrative. Kahoot! is an online gamified assessment tool that is fast paced and resonates like a game which allows teachers to assess student's progress in a "game" (Licorish *et al.* 2018). However, gamification type of questions is not for every student. One student expressed her preference of ClassPoint over Kahoot! 'as the competitive nature of Kahoot! ruins the joy of learning'. A few other participants also preferred ClassPoint because "it feels less like a game", which subliminally

makes them answer the questions more seriously than rushing through it. This supports previous studies that not every student will enjoy game-based learning (Jones *et al.* 2019). Having said that, 69% of the participants prefer ClassPoint compared to other CRS they have used and 13% of the participants felt that there is no difference in the various CRS they have used as long the instructor incorporates the questions in a way that is interactive. The remaining 18% do not find ClassPoint a better CRS compared to the other contemporary ones.

### (B) Students' Perception: The Effectiveness of ClassPoint on Student Engagement

In the Likert scale questions for the student's survey, the students' responses were evaluated as indicated in Table 1. The main purpose of using ClassPoint in our lesson is to encourage students and instructors' interactivity during class. In **Q3**, 35% of the participants strongly agreed and 41% of the participants agreed that they have experienced greater interaction and engagement with their instructors when ClassPoint is used as a quiz tool during lesson. About 11% were neutral about this and 13% disagreed. When students were asked if ClassPoint has motivated them to participate in questions and polls more often in the class (**Q4**), up to 87% of participants agreed (54% agreed and 33% strongly agreed). In **Q5**, a total of 81% of the participants (37% strongly agree and 44% agree) felt the interactive quiz questions in ClassPoint has helped them to self-evaluate how well they were learning during the lesson while only 4% disagreed. This result indicates that ClassPoint helps students better gauge their learning progress through answering the interactive quizzes. In another question, students were asked on whether running ClassPoint in a lesson has made the class livelier and interesting compared to a class conducted without ClassPoint (**Q6**). The survey response indicated that 69% agreed or strongly agreed while 24% chose to remain neutral. A small percentage of students disagreed with this view. In response to **Q7**, 24% of students answered neutral. This reflects that the use of ClassPoint has not helped in engaging these students in class. However, there is still a large section of students (37% agreed and 17% strongly agreed) who found themselves more engaged in listening to instructor's presentation or respond promptly to the questions delivered using ClassPoint from their own browser.

Questions	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
<b>Q3.</b> I experienced greater interaction and engagement with my peers and instructors when ClassPoint is used as a quiz tool in the class.	9%	4%	11%	41%	35%
<b>Q4.</b> The ClassPoint has motivated me to participate in questions and polls more often in the class.	4%	7%	2%	54%	33%
<b>Q5.</b> The interactive quiz questions in ClassPoint helped me to self-evaluate how well I was learning the course material during lesson.	2%	2%	15%	44%	37%
<b>Q6.</b> The lessons are lively and interesting when instructors run the class using ClassPoint than a class without the use of ClassPoint.	4%	4%	22%	39%	30%
<b>Q7.</b> ClassPoint's display slide allows me to follow along and pay more attention to instructors' presentation, live annotations	9%	13%	24%	37%	17%

and respond promptly to the delivered questions easily using my own browser.

Table 1. Likert Scale: Student’s Survey

**(C) Instructors’ Perception: The effectiveness of ClassPoint on Student Engagement**

There were 6 instructors who participated in this study, excluding the two authors of this paper. Instructor participants have used or are using ClassPoint as a tool to promote student interactivity during lesson. Participants were posed two Likert scale questions on students’ participation and response frequency to the interactive questions delivered via ClassPoint (Figure 1). The first question asked if ClassPoint enhances student engagement in class. None of them disagreed with this question. About 67% of the participants agreed (33.3% agreed and strongly agreed) while 33.3% answered neutral. In the second question, instructors were asked if students tend to respond more frequently in the posted short questions than respond verbally in class. Interestingly, all the participants agreed (60% agreed and 40% strongly agreed) that ClassPoint has greatly improved the frequency of student’s response to the questions compared to their verbal response in the class. These two results strongly suggest the effectiveness of ClassPoint in promoting in-class participation. Finally, instructors had to compare the efficacy of ClassPoint with other CRS they may have used previously. About 33.3% agreed that ClassPoint has indeed has encouraged students to be more engaged and interactive during class than other CRS, while 16.7% disagreed. These outcomes suggest that the use of ClassPoint has aided and complemented student engagement in both in-class participation and interactivity.

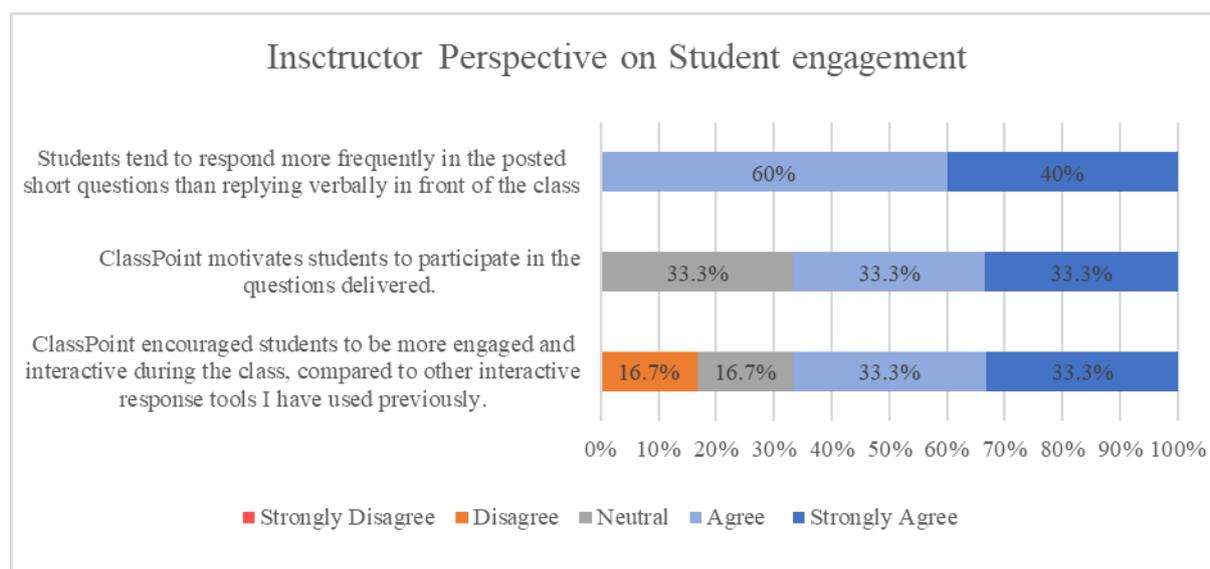


Figure 1. Likert Scale Questions on Instructor’s Perspective on Student Engagement with the Use of Classpoint.

**(D) Instructors’ Perception: The use of ClassPoint**

With so many CRS available in the market, it is equally important to highlight instructor’s perception especially in the usability and functionality in adapting ClassPoint in their existing lesson material amid to more potential home-based learning. Majority of the instructors found it easy to incorporate existing PowerPoint slides into interactive quizzes using ClassPoint (Figure 2). However, one instructor strongly disagreed with this view. Based on the survey results, this participant commented on the drawback of ClassPoint to be not compatible with PDF (Portable Document Format like Adobe Acrobat Reader)”. As mentioned earlier,

ClassPoint only works in Microsoft PowerPoint which means instructor who uses other document format to teach found it irrelevant. Two-thirds of instructors (66.7%) found that the lesson are more lively when ClassPoint is used because they can modify or add questions seamlessly in response to student’s understanding. However, a small percentage disagreed or chose to remain neutral. In response to a follow up questions with regards to accessing students’ understanding via the multiple choice questions and short answer mode in ClassPoint, majority of them agreed (40% agreed and strongly agreed) while 20% answered neutral. In addition, all the participants (80% agreed or strongly agreed and 20% neutral) enjoyed the convenience of conducting interactive quizzes and collate students’ responses using ClassPoint without the need of switching to another application. About 5 out 6 instructors indicated that they would continue using ClassPoint. These results indicated that instructor perceived ClassPoint as an effective tool in terms of its usability to incorporate in their class to improve students’ learning dynamic.

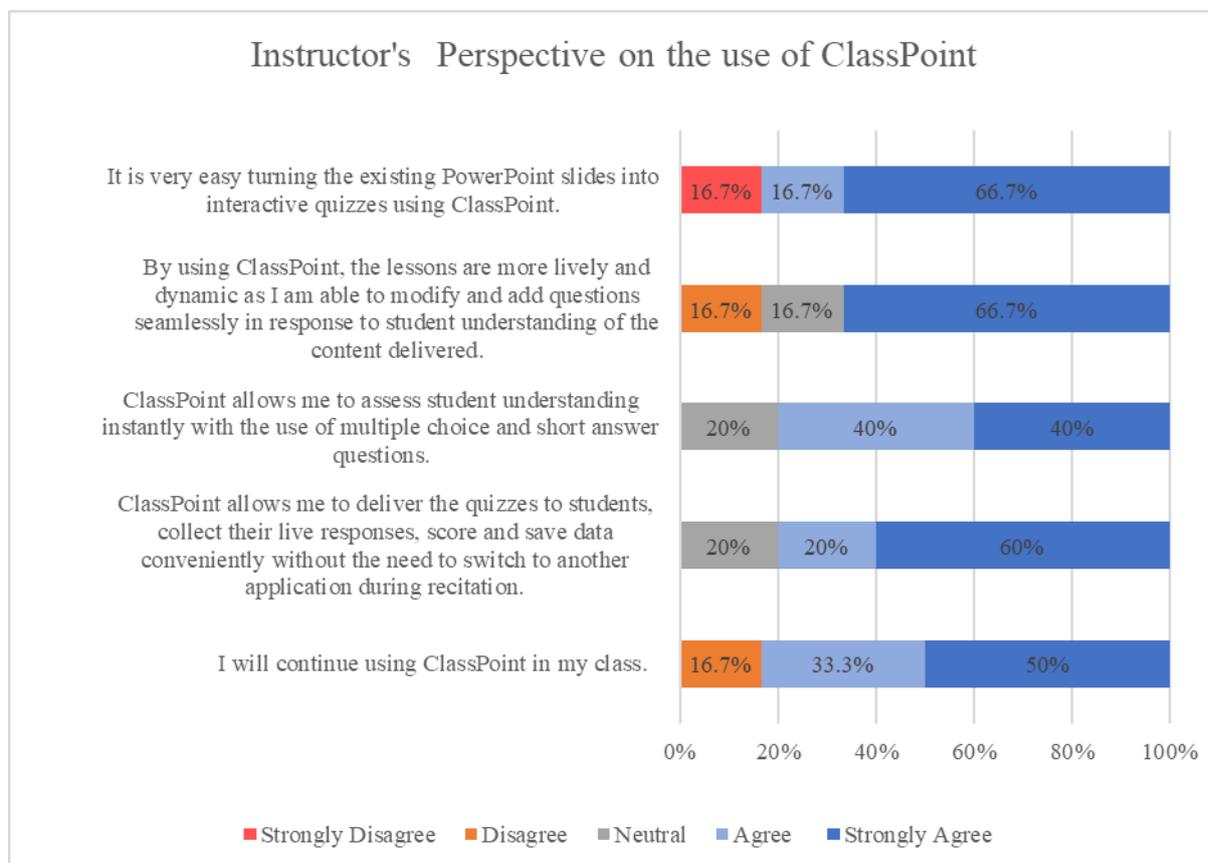


Figure 2. Likert Scale Questions on Instructor Perspective on the Use of Classpoint.

**Discussion**

Instructors perceived ClassPoint to be easy to use, and to have a positive impact on student engagement and interactivity. Due to its accessibility, affordability, and its user-friendly capabilities, teachers can feature a fun and unique student response system that is more enticing to the students compared to other CRS. The main advantage of using ClassPoint as part of an interactive quiz tools during lesson is that the users could easily create and deliver the questions using their existing PowerPoint slides without switching to another application. It also provides real-time analytic results and allows instructor to adjust instructional strategy to enrich student learning experience during class. It is a convenient alternative compared to other CRS that runs in a separate platform where the questions would have to be uploaded before class and makes

adding or modifying the questions during lesson a hassle. Based on the analysis of the results, ClassPoint would improve the frequency of student's response compared to verbal response in the class. ClassPoint also offers a diverse selection of features to help engage students through interactive quizzes like, slide drawing, word cloud questions and image upload. Users also found the 'Pick-a-name' function very useful to prevent picking the same students response to their questions too often and provide more opportunity to get other students involved in the classroom conversation.

ClassPoint also has an option to turn questions into a game by using the "competition mode", where students' name and scores are presented in a leaderboard. However, instructors involved in this study did not use this function. Interestingly, one student pointed out he/she was glad that the instructor did not implement this option as it eases the pressure of competing with the peers and could have spent the time focus on answering the question correctly. This observation is synchronous with previous studies (Yien *et al.* 2011) which found that game-based educational tools are better suited to smaller classrooms with elementary and high school students rather than university students who have to achieve specific learning outcomes through intentional learning. Having said that, there are still some students and instructor who enjoyed gamified CRS as it is more fun and keeps the students motivated to participate in a form of competition. Through this study, it is evident that striking a balance between fun and learning is vital to effectively using ClassPoint as a valuable CRS in the classroom which Licorish *et al.* (2018) also agreed for the use of game-based student response systems in education.

There were some challenges with using ClassPoint as a platform to conduct interactive quizzes for the main user aka instructor. The primary limitation is its compatibility with different software and operating systems. As of now, ClassPoint is not compatible with MacOs and iOS versions of PowerPoint. Instructor who often uses MacOS or iOS devices to annotate slides during teaching would not be able to integrate ClassPoint. Since it is only compatible with Window 7/8/10 and PowerPoint Office 2013/2016/20165, instructors using other forms of file format for example Adobe Acrobat Reader found cannot use ClassPoint for their lesson. Despite having an option to save and review students' responses, 33% of the instructor participants highlighted the challenge in capturing individual students' score in response to the quizzes. Unlike the Learning Catalytic, ClassPoint does not have the option to collate students' responses in a summary format of the responses for each questions asked or view results in raw data version to see detailed responses from each respondent. It will indeed be highly convenient if instructors are able to consolidate individual student's performance on all the questions delivered. Besides, it will be beneficial if ClassPoint has a feature whereby instructors can monitor student participation rate in a click of a button rather than manually check the individual responses on each questions.

## Conclusion

This paper presented instructors' and students' experience in using ClassPoint for some of the first-year undergraduate courses in SUTD. Survey results showed the use of ClassPoint as an interactive quiz tool desirable for students. It provides greater student-instructor interaction and engagement during class. More than 80% of students agreed that ClassPoint has motivated them to participate more often in class and helped them to self-evaluate their learning progress during lesson. Instructor could also monitor students learning progress from the real-time analytic results to adjust instructional strategy, for example adding in more follow up questions seamlessly within PowerPoint slide without switching to another application during lesson.

The main challenge for the user beside its compatibility is its difficulty in capturing individual students' score in response to the quizzes. Overall, students and instructors enjoyed using ClassPoint as it brings out the lively dynamic of the class.

In conclusion, the use of ClassPoint for in-class interactive response tool is effective in encouraging student engagement and attentiveness. Instructor should strike the balance in incorporating fun and learning with the use of ClassPoint for university-level students.

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***Relationships between Japanese University Students' Interest in Computer Programming,  
Their Logical Thinking, and IT Literacy***

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**Abstract**

Increasing emphasis is being placed on strengthening personal ability for computer programming. However, students have different levels of readiness and consciousness to learn programming. When promoting computer education, it is imperative that the curriculum be designed, considering students' backgrounds and awareness of computer programming. This study examines the relationships between Japanese university students' interest in computer programming, logical thinking, and IT literacy. A questionnaire study with 118 Japanese university students suggests the following findings on the students in humanities. (1) More than 60% of the liberal arts students are interested in computer programming, which is more students than we expected; (2) it is important for students in humanities to focus on designing a program that motivates them; (3) their computer software experiences may slightly influence interest in computer programming. Although further investigations are needed, the preliminary indicators from this study suggest that the curriculum flow, in which general information literacy classes are introduced before computer programming classes, is expected to reduce liberal arts students' psychological resistance to programming and promote their readiness and consciousness toward it. Furthermore, we hope to investigate the relationships between students' interest in computer programming and their future career plans by targeting the students in humanities.

Keywords: Programming Education, Student Interest in Computer Programming, Logical Thinking, IT Literacy

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## Introduction

Increasing emphasis is being placed on strengthening personal ability for computer programming. Japan's Ministry of Education, Culture, Sports, Science and Technology (MEXT) (MEXT, 2018) explicitly mentioned fostering information literacy, including the ability to think logically as a way of programming in elementary and secondary education. Computer programming became a mandatory subject in Japan's elementary schools in 2020 (MEXT, 2020). The National Center for University Entrance Examinations (2021) also announced that the subject "information" was planned to be introduced into the Common Test for University Admissions in 2025, and exam sample questions were published and explained (Mizuno, 2021). These measures aim to train a new generation by equipping them with advanced information and technology skills.

On the other hand, students have different levels of readiness and consciousness to learn programming. Particularly, university students did not go through such a mandate, and they have varied experience and knowledge regarding computer programming. It should be considered how to adapt instructions for different populations. In order to plan and implement effective instructions, it is critical to have a better understanding of students.

To meet this challenge, this study examines the relationships between Japanese university students' interest in computer programming, logical thinking, and IT literacy. We conducted a questionnaire study with 118 Japanese university students to investigate the following research questions:

1. How is students' interest in computer programming? Is there any difference depending on the faculty?
2. Is students' interest in computer programming related to their logical thinking attitudes? Is there any difference depending on the faculty?
3. Is students' interest in computer programming related to their personal computer experiences? Is there any difference depending on the faculty?

Below, we first describe related studies, then provide the methods of the present study, deliver its results, and discuss its findings. Finally, we present our conclusions and recommendations for further studies.

## Related Studies

Nowadays, fostering human resources based on information technology is globally demanded regardless of whether the student is in a humanities course or science (MEXT, 2018). In response to these demands, the development of teaching plans and training materials for computer programming is being promoted (MEXT, 2019). Efforts related to computer programming education are being promoted at elementary schools nationwide, and various practical reports are being made. For example, programming activities for mathematics and English classes are introduced in a case report (Shimabuku, 2021). Programming activities using a one-board microcomputer were proposed in science classes (Kato, Matsuda, Ueno, & Hamada, 2019). Programming education in elementary school is conducted within various existing subjects. In junior high school education, students learn programming for measurement, control, and interactive content, and in senior high school education, they learn programming, including algorithms (Kanemune, 2019). At the junior high school level, Noguchi and Ogura (2020) investigated the systematic curriculum for programming education, taking science as an example. Shinkai & Sumitani (2008) developed the learning

support system for introductory programming courses and they succeeded in a preliminary evaluation experiment for technical college students.

On the teacher's side, many elementary school teachers are expected to be worried about teaching programming. To deal with this problem, training programs for teachers who are unfamiliar with programming education are being proposed. For example, a training program is proposed in which training sessions are conducted multiple times in a short time considering the actual working conditions of the respective schools (Kawasumi, Ito, Kuroha, & Kobayashi, 2019). In the research case by Yasukage & Shinch (2018), elementary school teachers gained confidence in practice and contributed to promoting programming education through the teacher training course. On the student's side, Kobayashi and Nakagawa (2019) revealed the changes in the consciousness of students on "thinking and expression" in programming education at the elementary school level through three categorized educational practices. Another research reported on the educational practices in elementary school mathematics classes using a block-based visual programming language called "Scratch" and non-computer programming (Kuroha, Ito, Kawasumi, & Kobayashi, 2021). The results indicated that learning content has become more established than in conventional educational practice and that students' motivation and interest in programming have increased.

Given the varying levels of readiness and consciousness as well as the experience and knowledge regarding computer programming, we considered it important to design the curriculum taking into account students' backgrounds and awareness of computer programming. From this point of view, we explore the relationships between Japanese university students' interest in computer programming, logical thinking, and IT literacy.

## Methods

### Participants

This study's participants consisted of 118 first-year students in three classes at a university in Japan (i.e., 40 in Economics class, 39 in Global Human Sciences class, and 39 in Engineering class). Table 1 shows the number of students and their respective majors. These students completed a questionnaire, the questions of which are displayed in Table 2.

### Data Collection and Analysis

A questionnaire was administered to gather subjective responses from students about their interest in computer programming, logical thinking, and IT literacy. Table 2 shows the questionnaire items. Responses were scored on a five-point Likert Scale (i.e., 1 point for Strongly Disagree, 2 points for Moderately Disagree, 3 points for Neutral, 4 points for Moderately Agree, and 5 points for Strongly Agree). Through a Wilcoxon rank-sum test and a correlational analysis, we attempted to investigate how the variables were distributed and related to one another.

Table 1: Number and Major Field of Participants

Class	Grade	Major Field	Number of Students
A	1 <sup>st</sup> year	Economics	40
B	1 <sup>st</sup> year	Global Human Sciences	39
C	1 <sup>st</sup> year	Engineering	39

Table 2: Questionnaire Items

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**Regarding Students' Interest in Computer Programming, Logical Thinking, and IT Literacy**


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**Q1. I am good at thinking things in order.**

**Q2. I am good at thinking things logically.**

**Q3. I often use Microsoft Office applications, such as Word, Excel, and PowerPoint.**

**Q4. I am interested in computer programming.**

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## Results and Discussion

We investigated research questions on students' interest in computer programming, and the relationships between their interest in programming and other items. Here we analyzed the whole tendency of the questionnaire results. The results of the questionnaire responses are listed in Figure 1 to Figure 4. The percentage of participants who chose the five options in the respective questions is shown in these figures. Q1 in Figure 1 and Q2 in Figure 2 concern students' logical thinking, Q3 in Figure 3 concerns their computer software experiences, and Q4 in Figure 4 concerns their interests in computer programming.

First, we will look at how the participants showed agreement with Q1 and Q2, that is, their logical thinking attitudes. According to the results of Q1 in Figure 1, a total of 60% of the participants in class A showed agreement (i.e., "I am good at thinking things in order."). In class B, a total of 56.4% agreed with Q1. In both classes, around 60% showed agreement with Q1. Meanwhile, a total of 76.9% in class C showed agreement with Q1. From the results of Q2 in Figure 2, a total of 55% of the participants in class A agreed (i.e., "I am good at thinking things logically."). In class B, a total of 56.4% agreed with Q2. In both classes, a little less than 60% showed agreement with Q2. Meanwhile, a total of 74.3% in class C agreed with Q2. Regarding student logical thinking attitude, more participants in science (class C) than those in humanities (class A and B) show positive responses, as expected to some extent.

Next, we will look at how the participants showed agreement with Q3, that is, their computer software experiences. According to the results of Q3 in Figure 3, a total of 37.5% of the participants in class A showed agreement (i.e., "I often use Microsoft Office applications, such as Word, Excel, and PowerPoint."). In class C, a total of 41% agreed with Q3. In both classes, around 40% showed agreement with Q3. Meanwhile, a total of 64.1% in class B agreed with Q3. Regarding computer software experiences, it did not matter if the participants were in science or humanities. Regarding Q4, we will discuss this in the following section.

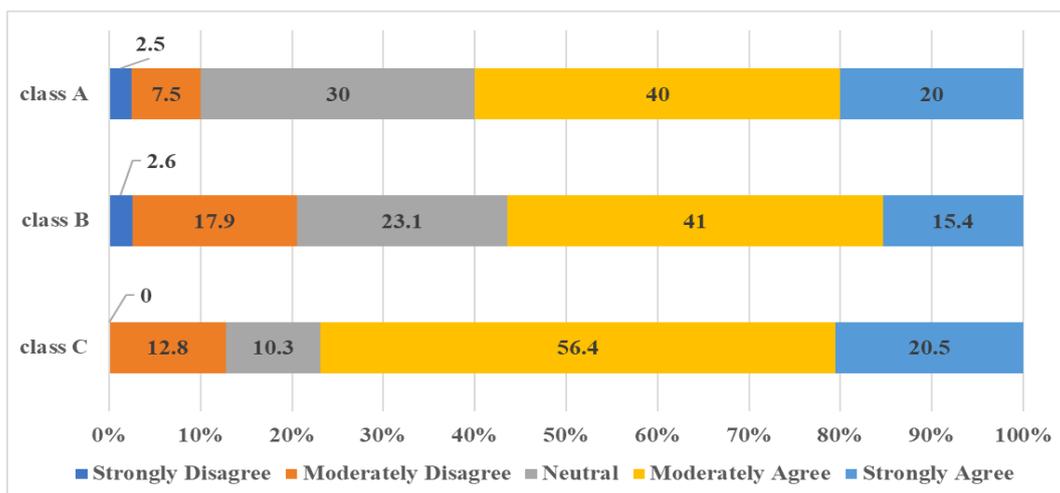


Figure 1: The Percentage of Participants Who Chose the Respective Options in Q1.

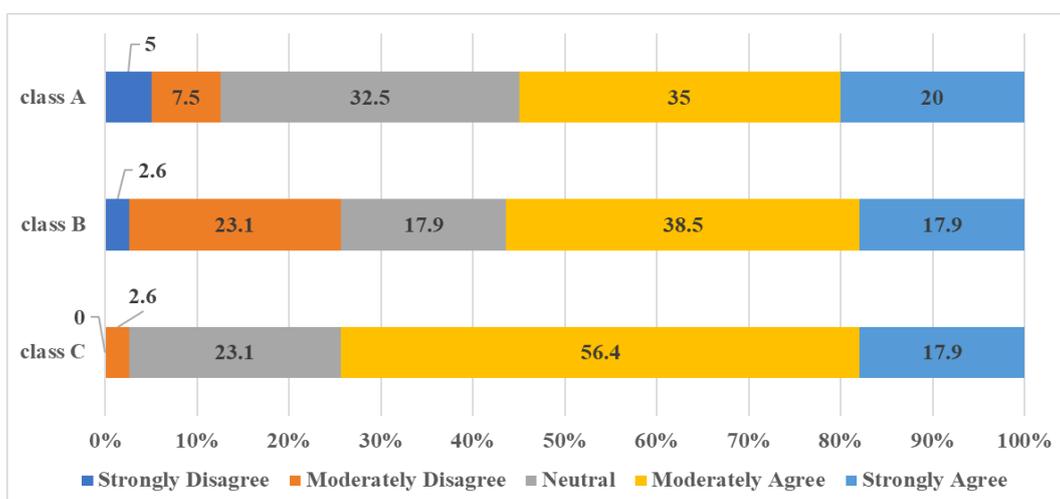


Figure 2: The Percentage of Participants Who Chose the Respective Options in Q2.

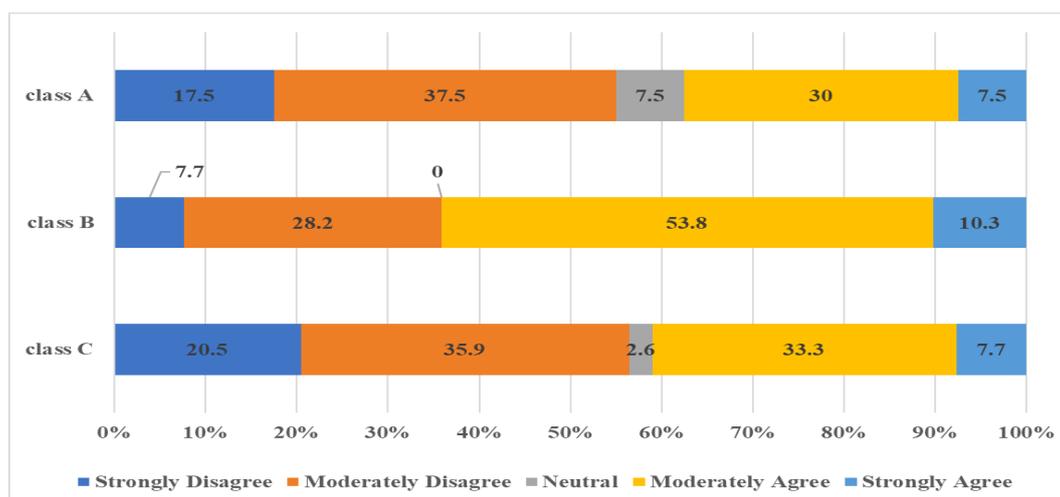


Figure 3: The Percentage of Participants Who Chose the Respective Options in Q3.

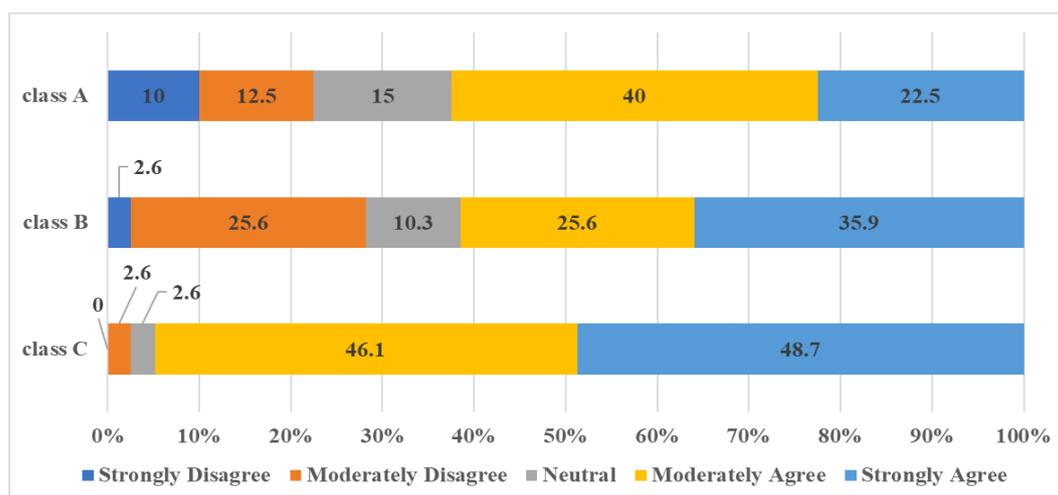


Figure 4: The Percentage of Participants Who Chose the Respective Options in Q4.

### RQ1: How is students' interest in computer programming? Is there any difference depending on the faculty?

Concerning RQ1, we will analyze how the participants showed agreement with Q4, that is, their interests in computer programming. Here we used Wilcoxon rank-sum test on the data of Q4 to analyze whether two classes are different from one another in a statistically significant manner at the 0.05 level.

We first calculated the average scores of the responses by a five-point Likert Scale for the respective classes to investigate student perceptions overall. The average scores for the three classes were 3.5 (class A), 3.7 (class B), and 4.4 (class C). The average score of class C was higher than those of class A and class B. From the results of Figure 4, a total of 94.8% of the participants in class C showed agreement with Q4 (i.e., "I am interested in computer programming.").

Then by using the Wilcoxon rank-sum test on the data of Q4, we analyzed whether the following two classes, class A and class B, class A and class C, and class B and class C, are statistically different. The results indicated that class A and class C ( $p=0.0006$ ) and class B and class C ( $p=0.0158$ ) are statistically different, while class A and class B ( $p=0.5319$ ) are not.

These results suggest that participants in science have significantly higher interests in computer programming compared to those in humanities.

At the same time, from the results of Q4 in Figure 4, a total of 62.5% of the participants in class A showed agreement. Also, in class B, a total of 61.5% agreed with Q4. In both classes, more than 60% of the participants showed agreement with Q4. The results indicate that more students than we expected have interests in computer programming. These results suggest the importance of designing a program that motivates liberal arts students when considering a program for computer programming.

**RQ2: Is students' interest in computer programming related to their logical thinking attitudes? Is there any difference depending on the faculty?**

We investigated how students' interest in computer programming was related to their logical thinking attitudes. To analyze the data related to RQ2, we calculated Spearman's rank-order correlation coefficients between Q1 and Q4, also Q2 and Q4 from the questionnaire.

\*Correlation represents statistical significance at the 0.05 level.

Table 3: Correlations among Questionnaire Items.

	Class	Q1	Q2	Q3	Q4
Q1	A	—			
	B	—			
	C	—			
Q2	A	0.56*	—		
	B	0.68*	—		
	C	0.52*	—		
Q3	A	-0.13	-0.11	—	
	B	0.29	0.27	—	
	C	0.26	0.05	—	
Q4	A	0.22	0.23	0.37*	—
	B	0.20	0.03	0.07	—
	C	0.26	0.35*	0.19	—

\*  $p < .05$

The results of the correlation coefficients between Q1 and Q4 in the three classes indicated in Table 3 (class A:  $r_{Q1Q4}=0.22$ , class B:  $r_{Q1Q4}=0.20$ , class C:  $r_{Q1Q4}=0.26$ ) show that no significant relationship exists between students' interest in computer programming and their logical thinking attitudes. Meanwhile, the correlation coefficient results between Q2 and Q4 only in class C in Table 3 ( $r_{Q2Q4}=0.35$ ) show a significantly weak positive relationship between students' interest in computer programming and their logical thinking attitudes. However, the correlation coefficients between Q2 and Q4, both in class A ( $r_{Q2Q4}=0.23$ ) and class B ( $r_{Q2Q4}=0.03$ ), are not statistically significant.

Regarding student logical thinking attitude, there is a weak relationship between interest in computer programming and logical thinking ability only in the Engineering class. The results suggest that students' logical thinking may slightly influence interest in computer programming.

**RQ3: Is students' interest in computer programming related to their personal computer experiences? Is there any difference depending on the faculty?**

We also investigated how students' interest in computer programming was related to their computer software experiences by calculating Spearman's rank-order correlation coefficients between Q3 and Q4.

The results of the correlation coefficient between Q3 and Q4 only in class A in Table 3 ( $r_{Q3Q4}=0.37$ ) show a significantly weak positive relationship between students' interest in computer programming and their computer software experiences. However, the correlation coefficients between Q3 and Q4, both in class B ( $r_{Q3Q4}=0.07$ ) and class C ( $r_{Q3Q4}=0.19$ ), are not statistically significant. Regarding computer software experiences, there is a weak relationship between interest in computer programming and computer software experiences only in the Economics class. The results also suggest that students' computer software experiences may slightly influence interest in computer programming.

From these suggestions, it is important to design a curriculum in which students take general information literacy education before learning computer programming. This curriculum flow is expected for students to become more interested in computer programming.

## Findings

As for considering students' backgrounds and awareness of computer programming, it is still a work in progress. However, the preliminary indicators from this study suggest important findings on the students in humanities. From the questionnaire results, more than 60% of the students in humanities have an interest in computer programming. Regarding students' interest in computer programming and their logical thinking attitudes, the results also show that no significant relationship exists among students in humanities. These results suggest the importance of focusing on designing a program that motivates liberal arts students rather than sticking to whether they have logical thinking abilities. Furthermore, regarding computer software experiences, the results show a weak relationship between interest in computer programming and computer software experiences in the Economics class. It is suggested that students' computer software experiences may slightly influence interest in computer programming. From these suggestions, if general information literacy classes are introduced before students learn computer programming, this curriculum flow is expected to reduce liberal arts students' psychological resistance to programming and promote their readiness and consciousness toward it.

## Limitations and Recommendations

The current study has certain limitations. It was conducted with only three classes, a small group of students. More studies are needed to target a larger number of students. Also, logical thinking ability is subjectively evaluated by the students themselves in this study. Objective evaluation is needed to measure logical thinking ability. Furthermore, the preliminary indicators from this study suggest that students' fields of study and future career plans must be considered when designing and implementing computer education. We hope to investigate the relationships between students' interest in computer programming and their future career plans.

## Conclusion

In order to promote computer education, the curriculum must be designed considering students' backgrounds and awareness of computer programming. This study examines the relationships between Japanese university students' interest in computer programming, logical thinking, and IT literacy.

The results of our preliminary study suggest the following findings on the students in humanities. (1) More than 60% of the liberal arts students are interested in computer programming, which shows that more students than we expected have an interest; (2) it is important to focus on designing a program that motivates them; (3) their computer software experiences may slightly influence interest in computer programming. The curriculum flow, in which general information literacy classes are introduced before computer programming classes, is expected to reduce their psychological resistance to programming and promote their readiness and consciousness toward programming.

As a continuation of this study, we could examine these relationships by targeting the students in humanities. The preliminary indicators from this study suggest that students' fields of study and future career plans must be considered when designing and implementing computer education. We hope to investigate the relationships between students' interest in computer programming and their future career plans.

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## ***Breaking Boundaries of Prison Design for Architectural Design Studio***

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### **Abstract**

In collaboration with the International Committee of the Red Cross (ICRC) and the Thailand Institute of Justice (TIJ), design tasks for a prison design are carried out within a second-year studio course of a Bachelor's program in architecture to improve the students socially oriented design skills and train their critical understanding towards solving designs problems via an open, integrative approach to learning. The tasks aim to offer creative solutions that improve human living conditions and inspire inmates to improve their social behavior and attitude towards life. The mixture of learning experiences in direct contact with experts, specialists, and those affected are intended to strengthen the knowledge base, empathy, and sincerity in the decision-making process to address and improve social issues in connection with the design. In a stepwise approach, studio learning is intensified by the students' collaboration with stakeholders and existing design-related social issues. According to the students' design results, the proposed designs imply greater awareness of social issues and an understanding of human-centered needs, documenting the student's aim to improve the current situation of prisoners. In addition, the disseminated public results, conflicting with the widespread public opposition towards improving prison conditions, helped students develop their critical thinking and reasoning skills towards others. Future improvements in teaching will include exploring a wider range of relevant, critical, and socially-oriented aspects of architectural design tasks and expanding collaboration and engagement with the respective individuals and groups.

Keywords: Architectural Design Education, Social Design Aspects, Design Teaching Collaboration, Creativity in Design

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## Introduction

Becoming "social change agents" is one of King Mongkut's University of Technology Thonburi's (KMUTT) key missions in producing successful university graduates (KMUTT, 2017). Such competency describes how the learned subjects form the basis on which graduates contribute to solving existing societal challenges, thus leading to the mutual success of the individual graduate and society itself. In university-level teaching, the methods of strengthening such competency of social change leadership are manifold, yet they depend on the course content themselves. For instance, looking at the universities' School of Architecture and Design (SoA+D) and their design courses, one way to highlight social aspects is to create assignments that address and conflict with such issues. For encouraging social engagement, another approach is to have students work with realistic scenarios and expose them to the respective stakeholders to experience the given situation.

Prisons are suitable examples for exploring prevalent social facets, thus suggesting themselves as an architectural design task. In Thailand, prisons currently face the challenge of overcrowding (Kittayarak, 2010), with recidivism of drug-related offenses recognized as a significant cause (O'Connor, 2019). With a 266% occupancy rate in 2015, in some situations, up to 40 detainees share a cell accounting for less than 1.2 sqm for males and 1.1 sqm for female inmates (FDIH, 2017). In contrast, the standard minimum requirement for individuals suggests at least 3.4 sqm for an inmate (Nuttall & Jurisic, 2016). Given overcrowding, in many situations, global guidelines for managing prisons with minimum requirements for safeguarding humanitarian rights or health and hygiene standards are not achieved (UN, 2016). However, they can also lack development as sufficient funds are required to correct the clean-up to improve the current, undesirable circumstances. These include poor conditions due to the tropical climate, such as adequate ventilation and protection from overheating (FDIH, 2017). In addition, public opinion also limits efforts to improve prison design, especially when proposals focus on fair or humanized treatment. Prison quality is often of little concern to the unaffected public, and it is unlikely they would consider supporting improvements. Accordingly, when planning new prisons or renovating existing facilities, it appears necessary to take international guidelines into account, learn from innovative case studies (Ireland, 2017), and understand the local context.

In collaboration with the International Committee of the Red Cross (ICRC) and the Thailand Institute of Justice (TIJ), SoA+D established an education-based alliance to design prisons to propose and discuss possible solutions and develop future design strategies between 2018-2020. It was decided to employ the architecture program's second-year studio design course and create project assignments that have students explore social-oriented and human-centered methods into prison designs, gain a critical perspective, and practice sharing that understanding with others by creating alternative examples for prison design in Thailand. As part of the assignments, it was suggested that students consider a guide to prison design provided by the ICRC, which also agreed to share its universal knowledge of prison management and design with students in a lecture class and provide advice and feedback on student design via its experts. Representatives from the Ministry of Justice (MOJ), the Thai Institute of Justice (TIJ), and the Ministry of Justice (DOC) also provided expertise and suggestions. In addition, they assisted with the work on actual prison design tasks for existing prison facilities, such as Nakhon Nayok Prison, a women's prison in Ratchaburi Province, Thailand, and refurbishing an existing prison Thonburi.

Accordingly, this research seeks to investigate educational methods for teaching architectural design concerning socially-oriented issues to encourage students to develop a critical understanding of existing contemporary societal issues and discover their relevance in architectural design. In addition, a collaborative approach is tested by inviting all experts to participate in the teaching schedule to encourage students to learn current societal problems and their circumstances and discuss possible solutions with relevant stakeholders. In such a setting, students are expected to learn to address these in their designs by employing a social-oriented design approach and communicating their suggestions appropriately, thus, enhancing the social issue awareness and creatively integrating it in the design process.

## **Body**

With the realization of studio design tasks following certain teaching/learning activities sequences, instructors gradually introduced social aspects relating to prison design. Usually, students follow a procedure to solve fundamental problems of a project by answering related aspects in interconnected subgroups, such as respective spatial planning requirements. In conversation with their lecturer, the students then reacted by synthesizing a reflection of the problem description through the creative design process and visualizing a design proposal. To introduce social design aspects, establish their significance and relevance to the design task, and allow collaborators to participate in the design process, additional interference steps were integrated as teaching/learning activities. They included the visit of an existing operating prison facility in Thailand with interviews of detainees and correctional officers. The visit was followed by lectures on prisons' current situation and condition in Thailand, introductions on international standards, and guidelines from architects and engineers with expertise in prison design. In addition, ICRC presented safety and hygiene-oriented guidelines by a water & habitat coordinator and a legal advisor. In later charette sessions, the students' design schematics were then presented and discussed with the prison's architect and engineers to advise and consult on safety measure issues. Final design proposals were showcased to the entire team of instructors and guests such as the prison's director from the department of correctional facility (DOC), the representative from the Ministry of Justice (MOJ), Thailand Institute of Justice (TIJ), International Committee of the Red Cross (ICRC). The students presented their work to discuss their ideas and received final comments and suggestions from experts that joined and followed the design process. Their work was publicly exhibited as part of the school's year-end of year exhibition and reported on in newspapers and magazines and via social media channels, including interviews and screening on public television channels (Chanel 3 and IPTV) and publication via print (Art4d, Aday, Bangkok Biz News, and Way) and their social media channels. Selected students and instructors also received a scholarship to attend and present to "ACCFA: Asian Conference of Correctional Facilities Architects and Planners in Sri Lanka (2018) and Tokyo (2019).

At the end of the course, a project exhibition and a final evaluation with guests from cooperating institutions took place; Representatives spent a day with students, attending design presentations, and discussing ideas and feedback on the projects. The final project proposals highlighted various study results, such as improving the gathering areas or meeting relatives. Much of the work was also aimed at disrupting the characteristic appearance, for example, by covering steel bars or walls with shading elements or stimulating pattern designs or by alluding to green elements. In addition, lighting, natural climate elements, and materials symbolize acceptance, optimism, and the desire to soften the overall picture and soften the overwhelming institutional appearance. Several factors for social circumstances and enhancements for human detainees were identified. Examples include student efforts to

improve the convicts' situation, such as common places for social contact or green spaces to reduce stress and anxiety. Another unique acknowledgment of the students' interest in the social design component was the assessment of prisoners' human rights, which are expressed, for example, in consideration of enough space needs per prisoner or the necessity to keep personal things. Finally, students investigated and questioned the existing practice of rigorous incarceration versus a more positive approach to supporting prisoners in achieving acceptance, social inclusion, and behavioral transformation. However, a central observation is that the students' proposed solutions do not always correspond to prisons' conventional, primarily security-oriented planning criteria. Instead, they highlight conceptual efforts to improve prisons' human and social situation, which eventually evolved into inspiring design solutions. The analysis of the results has revealed many methods for taking greater account of human-centered social design. The student work seemed less function-oriented but emphasized more social aspects in the design. The most striking difference between traditional designs and student ideas was that many proposed focused very little on relevant functional aspects.

## Conclusion

According to the instructors' comments, school conduct changed, exhibiting interest in guest opinions and subject knowledge. Furthermore, the student's understanding and perspective of prison design evolved with learning and expressing interest in the topic participating in discussions, and willingness to express their thoughts. According to the instructors, the primary events that prompted new perspectives were the real visit to a prison facility and the interviews with detainees and correctional personnel. In addition, lectures from specialists and other professionals piqued the students' interest in human needs. The students alluded to the Mandela Rules and the Bangkok Rules when presenting their concepts and goals during the final presentations. The instructors also saw a shift in the students' perceptions about design. Many students viewed inmates as 'users,' consequently incorporating their requirements into the design, thus showing empathy and commitment to improving the inmates conditions. This contrasts with how prisons are often designed when prison wards' imprisonment characteristics and safety are prioritized.

The invited guests were impressed by the students' work, design development, active participation, and enthusiasm for the subject. While the ICRC representatives generally welcomed the proposed solutions and suggestions to improve detention conditions, they accepted them as a valid starting point for future discussions. Representatives from the TIJ and DOC also praised the presented designs as intriguing ideas for people looking to improve their lives. They were also excited by students' willingness to show large interest in the otherwise stigmatized subject, to work on it sincerely and maturely, and discuss possible improvements openly.

In addition to the cooperation partners, the public media were invited to follow and report on the event: Aside from the final presentation, TV stations (Channel\_3, 2019; ThaiPBS, 2019) digital and print magazines (ADay, 2019; ICRC, 2019; Kerdsup, 2019) showcased selected works and interviews with lecturers, guests, and students. As their broadcasts and publications drew widespread public attention, discussions, and debates erupted on social media, primarily over whether Thai society should pay attention to prisons and their conditions and whether they should be used for punishment or rehabilitation. The public's reactions to the presented student projects were also positive; however, opposing comments were made (ADay, 2018).

Integrating social issues into architectural training is an important part of architectural design tasks in training. A prison design task was assigned to bachelor students to improve their socially-oriented design and thinking skills and integrate an open approach to learning and public engagement. Furthermore, the task aims to provide architectural solutions that improve the human conditions of prisons and inspire inmates to develop their social behavior and attitude toward life to strengthen the students' knowledge base and clarity in decision-making. In collaboration with ICRC and TIJ representatives, a stepwise approach was developed to gradually provide students with different sources of information and learning experiences through contact with professionals, experts, and affected individuals during the design development process. The analysis of the results was based on instructor feedback on the evaluation of design proposals, their presentation, discussions with stakeholders, and the students' self-reflection. The conducted teaching methodology engaged the design studio in existing, design-relevant social issues, with proposed designs implying greater awareness and understanding of people-centered needs.

Instructors agreed that students' designs successfully improved the prisoners' current situation. They were able to address relevant debates and discuss them critically and in the context of their proposals with others. The contentious topic and collaboration with relevant partners encouraged students to think critically, discuss human-centered problems, and design alternatives to functional fulfillment. The commitment and cooperation with international and local expertise also turned out to be an essential component. Experts and guests also supported the result positively. In addition, the presentation of the students' work showed a positive attitude, an increase in the analytical attitude towards the design problem. Furthermore, students' positive attitudes demonstrated their interest in deliberating and discussing such issues and their willingness to change their position and attitude in response to social media. The results' public accessibility, combined with the prevalent public stigma against improving the conditions of convicted offenders, aided the students in developing their reasoning skills toward others.

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## ***Improving EFL Students' Argumentative Essay Writing Self-efficacy through Knowledge Building Based Instruction***

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### **Abstract**

Argumentative essay writing is essential for English as Foreign Language (EFL) students but complicated and challenging to learn. Besides the difficulties, students often do not have belief in their argumentative essay writing skills. One approach that may facilitate students' self-efficacy is knowledge-building-based (KB-based) instruction based on knowledge-building pedagogy. The KB-based instruction aims to provide a comfortable learning environment with the online collaborative working platform (Knowledge Forum) where students feel safe contributing their ideas needed for writing argumentative essays. This study aimed to see if EFL students can improve their self-efficacy of English argumentative essay writing after implementing the KB-based instruction. The participants who were university non-English major freshmen (n=66) were divided into the control group (n=34) with the conventional writing instruction and the experimental group (n=32) with the KB-based instruction. The questionnaire of English Argumentative Essay Writing Self-Efficacy (AEWS) with five dimensions was adapted from the Self-Efficacy for Writing Scale (SEWS) (Bruning et al., 2013), which was administered to the 66 participants before and after the study. The statistical results indicated that the two groups did not significantly differ in terms of the "ideation," "conventions," and "self-regulation" ( $p>0.05$ ); however, significant differences were found in terms of "argument writing ideation" and "argumentative essay writing self-regulation" ( $p<0.05$ ). The results suggested that the KB-based instruction could improve students' self-efficacy on argumentation due to the KB-based instruction did create an environment where students could generate ideas collaboratively and comfortably. Pedagogical implications and future applications were also discussed.

Keywords: Self-efficacy, EFL, Knowledge Building, Argumentative Essay

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## 1. Introduction

In the global knowledge economy era, learners must develop abilities helping them succeed in academic contexts or workplaces (Zhang, 2013). These abilities include collaboration, effective oral and written communication, critical thinking, and problem-solving (Chan, 2010; Gut, 2011; Kong, 2014; Wagner, 2018). Thus, many nations nowadays pay more attention to developing these abilities for their citizens (Wagner, 2018). Due to the limited domestic demand markets, Taiwan has more and more chances for citizens to participate in international trades and collaboration or communication that are involved with other people from other countries. In these contexts, the common communication language is usually English (Cook, 1999; Crystal, 1997; Doan, 2013; Dong, 2012). Therefore, improving students' English ability in international communication has been an important goal for contemporary English education, especially for nonnative English speakers (Canagarajah, 2014; Sharifian & Marlina, 2012; Zia, 2018). As a result, in Taiwan, training students to be equipped with the abilities mentioned above is needed in the global knowledge economy.

Among the abilities needed in academic contexts or workplaces, argumentation plays a critical role in developing critical thinking and developing a deep understanding of complex issues and ideas (Deane & Song, 2014). As Kuhn (1991) argued, argumentation is a thinking skill essential to idea formulation, problem-solving, and sound judgment in writing. Many researchers have also noted the importance of developing students' argumentative essay writing skills (Ne'meth & Kormos, 2001; Rapanta et al., 2013; Toulmin, 1958, 2003; Wolfe, 2011). Previous researchers have explored the relationship between students' English writing self-efficacy and writing performance. The results have shown that high writing self-efficacy beliefs are relevant to better writing outcomes (Bruning et al., 2013; Pajares & Johnson, 1996; Pajares, Johnson & Usher, 2007). However, the research mentioned above was mainly conducted in the K-12 education context and western countries. Very little research on English argumentative essay writing and its relationship with self-efficacy in higher education was conducted in eastern countries, especially in Taiwan. Therefore, how higher education students' argumentative essay writing and their writing self-efficacy related to their writing performance in Taiwan may be an important issue.

In order to help EFL learners to overcome the language barriers and argumentation difficulties when they write argumentative essays, some researchers have examined argumentative writing with the help of computer-assisted language learning (CALL). The adoption of CALL for English writing has been proved beneficial (Warschauer & Healey, 1998), such as online blogs (Ducate & Lomicka, 2005; Kathpalia & See, 2016), online discussion forums (Du & Wagner, 2006; Luehmann & Tineli, 2008). However, the findings of the previous studies showed that participants might increase their content knowledge with the assistance of CALL, but they do not attain higher levels of argumentation in their writings (Hall & Davision, 2007; Xie, Ke & Sharma, 2008). To date, researchers are still finding appropriate teaching approaches to help learners gain higher argumentation quality.

Because argumentation is one kind of collective idea refinement, it emphasizes supporting ideas with evidence, warrants, backing, and rebuttal of counter-arguments (Jonassen & Kim, 2010). That is to say, the central part of argumentation is idea generation. The idea-centered knowledge-building pedagogy may be a potential approach to train students' argumentation skills to address this issue. In the past two decades, knowledge-building pedagogy (i.e., educational practices based on knowledge building theory) has been widely and increasingly adopted in many educational settings. Due to the main features of knowledge building, it may

be a promising teaching approach for helping learners improve the quality of argumentation. However, most contexts of the empirical studies of knowledge building were in science, mathematics, and geography (Chan & Chan, 2011; Moss & Beatty, 2006). To date, very few studies of English have addressed the critical issue mentioned above. Therefore, as one of the initial attempts, this study tried to examine if knowledge building-based instruction (KB-based instruction) can be used as a practical teaching approach promoting university EFL (English as Foreign Language) learners’ self-efficacy of argumentative essay writing.

## 2. Literature Review

### 2.1 Knowledge Building Based Instruction

In the past two decades, knowledge-building pedagogy (i.e., educational practices based on Knowledge Building theory) has been widely and increasingly implemented in many educational settings. More and more relevant empirical studies in knowledge building pedagogies have been conducted in different settings (e.g., Gan, Hong, & Zhang, 2010; Hong, 2011; Hong & Sullican, 2009; Hong & Scardamalia, 2014; Aalst & Chan, 2007; Scardamalia, 2002, 2003; Scardamalia & Bereiter, 2003, 2006; Zhang et al., 2009). Regarding the instructional design, most of the KB studies only used knowledge-building pedagogy rather than integrating knowledge-building pedagogy with domain-specific instructional strategies. In addition, it was found out that most of the reviewed studies used “Knowledge Forum” as the primary research platform.

In the last few years, various technologies and tools have also been developed that can offer opportunities for computer-supported knowledge exchange (Cress, Kimmerle, & Hesse, 2006; Kimmerle, Cress, & Hesse, 2007), as well as for computer-assisted learning and collaborative knowledge building (Bryant, 2006). Scardamalia, Bereiter, and colleagues created the networked knowledge-building environment, Knowledge Forum, to support knowledge-building communities. Knowledge Forum is a platform with technology-enhanced knowledge-building pedagogies. It provides a multimedia-based knowledge space for community members to contribute ideas and rise above their early understandings (Hong et al., 2014; Hong & Chiu, 2015; Sun, Zhang, & Scardamalia, 2010). It is designed to support high-level knowledge processes and discourse that help learners to generate and improve their ideas (Hong & Scrdamalia, 2015).

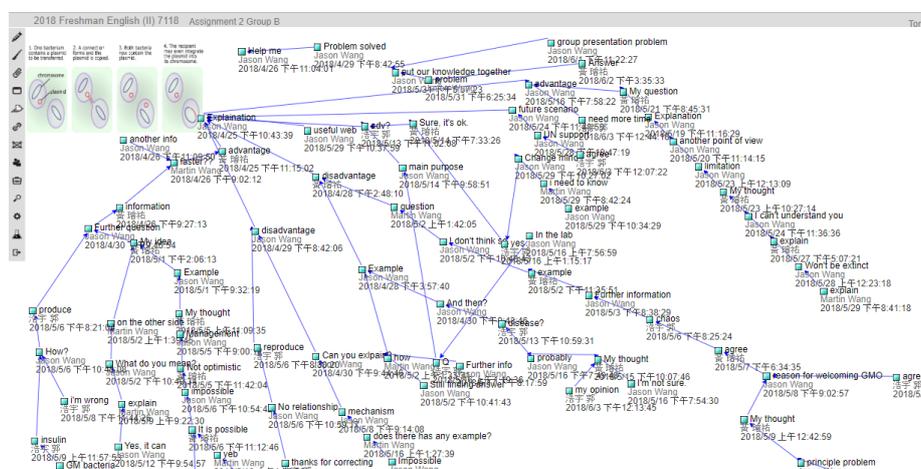


Figure 1: Screenshot of Students’ Discussion on Knowledge Forum

## 2.2 Argumentative Essay Writing Self-efficacy

Besides assessing argumentative writing, some researchers also pay attention to the learners' self-efficacy in English writing. Bandura (1977) defined self-efficacy as one's belief that he or she can perform a specific task successfully. Bandura (1992) believed that If one has lower self-efficacy, one does not have confidence in his/her abilities; however, one with higher self-efficacy feels more confident of overcoming difficulties he/she may have. That is to say, students with higher self-efficacy are more likely to work harder and are persistent in finishing assigned tasks (Bruning & Horn, 2000; Zimmerman, 2000). Before 1990, English writing research focused more on the cognitive processes involved in students' skills. After 1990, the emphasis of English writing research has moved from cognitive processes to students' "thoughts and beliefs." The later research revealed that students' self-efficacy plays a significant role in English writing (Pajares & Johnson, 1995; Schunk, 2003). The construct of self-efficacy plays a significant role (Hashemnejad, Zoghi, & Amini, 2014). In brief, previous research has shown that high writing self-efficacy beliefs are relevant to better writing outcomes (Bruning et al., 2013; Pajares & Johnson, 1996; Pajares, Johnson & Usher, 2007).

In the past three decades, researchers of English writing have developed tools with different dimensions for measuring writing self-efficacy. These measures include the relationship between university students' writing self-efficacy and performance concentrating on writers' writing mechanics (McCarthy et al., 1985), the relationship among university students' writing self-efficacy, outcome expectancy beliefs, and writing achievement (Shell, Murphy, & Bruning, 1989), the younger students' writing self-efficacy, outcome expectancy beliefs, and writing achievement (Shell et al., 1995). The results of these early studies all suggested that writing self-efficacy positively affects students' writing performance. Recently, the latest integrated model of writing self-efficacy has been proposed and proved successfully to predict students' writing performances (Bruning et al., 2013). The model has three main dimensions: ideation, conventions, and self-regulation.

### Ideation

Bruning et al. (2013) argued that the writers' beliefs about generating ideas are significant dimensions of writing self-efficacy. Idea generation is the first key element to successfully composition (Flower & Hayes, 1984).

### Conventions

After generating writing ideas, the next step is to express the ideas in writing. The way of expressing ideas is through language mechanics or conventions (Fayol, Alamargot, & Berninger, 2012; Flower & Hayes, 1981). In English, the conventions would include spelling, punctuation, capitalization, and structured sentences, which may provide the frames within which writers can express their ideas successfully (Bruning et al., 2013).

### Self-regulation

Having ideas to write and using appropriate mechanics to organize the ideas is essential to writing. However, some researchers argued that they are not enough (Zimmerman & Bandura, 1994; Zimmerman & Kitsantas, 2007, Bruning et al., 2013), more attention needs to be given to the writers' judgment about cognitive and linguistic features in the writing process (Hidi &

Boscolo, 2006).

From the above literature review, most English writing self-efficacy research has proved that self-efficacy positively affects students' writing performance. However, as noted, most of the contexts were in western countries, there is a lack of research about writing self-efficacy beliefs, especially in the Taiwanese EFL context. In addition, the main topic and the model developed is the general English essay writing self-efficacy. Few studies have examined the relationship between self-efficacy and argumentative writing performance and extended the three-dimension model to examine university writers' self-efficacy of argumentation writing. Thus, the present study tried to develop an instrument of English argumentative essay writing self-efficacy adapted from the previous general English essay writing self-efficacy.

### 2.3 Research Questions

- (1) After completing knowledge building based instruction, what are the changes of students' self-efficacy of argumentative essay writing?
- (2) Does any interaction between the knowledge building based instruction and students' self-efficacy of argumentative essay writing?

## 3. Methodology

### 3.1 Participants and Research Design

The participants came from two classes, the experimental group ( $n = 32$ ) and the control group ( $n = 34$ ), based on two different knowledge-building-based instructions implemented in this study. They were from different departments and institutes in the same university. All of them were native speakers of Mandarin Chinese and had been learning English for nearly six years or above. The participants were enrolled in the general English course focusing on reading and writing taught by the researcher who had had the experience of adopting KB instructions at the university level for over four years. The students in the two groups met once a week for 2 hours, and the whole duration of the study was 18 weeks. In this study, both groups used an online discussion platform, Knowledge Forum, with knowledge-building pedagogy helping them generate ideas, assume agency, and foster a community regarding the writing topics in the general English course.

This study adopted a quasi-experimental method, and the participants were divided into the experimental and the control group. As shown in Figure 2, the participants ( $n = 66$ ) were divided into two groups according to the two different knowledge-building-based instructions. The two groups first took the pretest and received a mini-lesson regarding the introduction to knowledge building and the basic operations of Knowledge Forum (2 weeks). Then the two groups finished two phases of knowledge-building learning activities (KBLA1 and KBLA2) and within the middle test. Finally, they took the posttest. The details of the knowledge-building-based instruction are explained below.

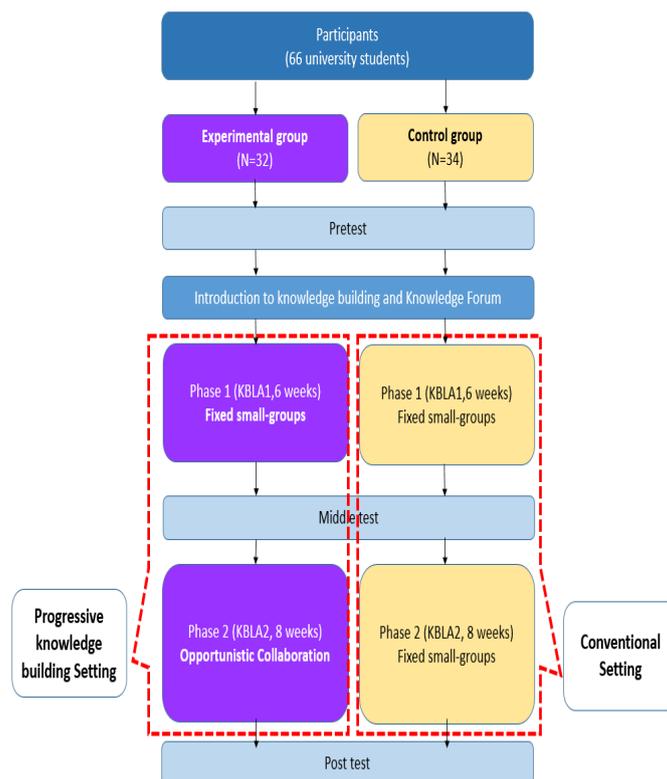


Figure 2: General Research Design of this Study

### 3.2 Knowledge Building Based Instruction

After the pretest, all experimental and control groups participants were divided into smaller groups in phase 1 (from Week 3 to Week 8). This study's knowledge-building-based instructions include the introduction to knowledge building and Knowledge Forum. The main difference between the two instructions was the KB learning environment. The two groups adopted the same KB learning environment (fixed small-groups), where participants mainly discussed and collaborated with the members within the group. At the beginning of phase 1, all students were introduced to knowledge building theory and the basic operations of Knowledge Forum at the beginning of the study in week 3. Once the two groups all have experienced the knowledge building process and become acquainted with Knowledge Forum operations, besides the regular textbook lecture in each week, both groups then started building their knowledge on Knowledge Forum with the topic used in the pretest: "How to solve the power shortage issue in Taiwan?". With the features of the Knowledge Forum and the knowledge-building elements taught in class, students regularly discussed the topic in and out of class. They helped each other within the small group to generate and improve ideas for reaching a consensus. They were also required to attend discussions collaboratively, and each small group was also required to do oral reports of their knowledge-building discussion progress in class (individual and group reflections) weekly. At the end of the first phase, each participant needed to finish an oral report with their group members and an English argumentative essay individually based on the ideas generated within the small group in Knowledge Forum in the first KB learning activity (KBLA1).

Before moving to the second phase, the participants took a middle test in week 8. One of the items of the middle test was argumentative essay writing. Students had to finish two English argumentative essays. The topics of the two argumentative essays were: "How to solve the

power shortage issue in Taiwan?” and “What are the pros and cons of GMOs? How can people use GMOs appropriately?” The first essay in the middle test was one of the artifacts from the first KB learning activity, which then was compared with the essay written in the pretest. The second essay in the middle test was the “pretest” of the English argumentative essay before finishing the second KB learning activity. A mini-lesson with reading materials and GMO videos was also given to all participants before conducting the second phase.

In phase 2 (from week 10 to week 17), the students in the control group still used the fixed small-groups while the students in the experimental group adopted the opportunistic collaboration environment where all students were in one community. Both groups built their knowledge with the same topic: “What are the pros and cons of GMOs? How can people use GMOs appropriately?” As aforementioned, the two groups adopted different KB learning environment settings. The experimental group adopted opportunistic collaboration, which did not use the fixed small-groups setting. That is to say, the whole group members started with the same shared, top-level goal (i.e., What are the pros and cons of GMOs? How can people use GMOs appropriately?). The participants in the experimental group elaborated sub-goals (i.e., different perspectives concerning the GMOs) as their works proceeded (Zhang et al., 2009). Unlike the control group, the participants in the experimental group in the second phase were responsible for the growth of all views; no one was assigned to work in specific Knowledge Forum views. Daily, the participants were free to explore any problem from any view. After the two groups finished the second phase, they were required to finish the posttest in Week 17.

### 3.3 Data Collection and Data Analysis

In order to explore university students’ self-efficacy of argumentative essay writing, a revised model called Argumentation Self-Efficacy Writing Scale (ASEWS) was adapted from Bruning et al. (2013) in this study. Bruning et al. (2013) argued that the SEWS might have potential utility for research. It provides minimal information about the sources of students’ writing self-efficacy beliefs. The original SEWS consists of 16 items corresponding to the three categories of writing-related experience: ideation, conventions, and self-regulation and three focal dimensions (ideation, conventions, and self-regulation) aiming to predict the writing achievements from the affective experience (Bereiter & Scardanakuam 1987; Pajares & Johnson, 1996; Schunk & Zimmerman, 2007). In this study, besides the items of SEWS, two more dimensions related to argumentative essay writing were adapted and added to explore the students’ argumentative ideation and self-regulation (For the details of the items, please refer to Appendix 5). The participants rated their English argumentative essay writing self-efficacy on a 0 to 100 scale ranging from no confidence to complete confidence (Bandura, 2006).

Bruning et al. (2013) found out that the internal consistency of coefficients of the three subscales (ideation, conventions, and self-regulation) of original SEWS was between .80 and .91. and .90 for the total scale. The two added subscales (argumentation ideation and argumentation self-regulation) added to the instrument used in this research have also been tested. Their internal consistency of coefficients was .94 and .90, respectively, all exceeding the threshold of .50 for attitude and preference assessments (Tuckman, 1999). The overall reliability and validity of the 28 items were further tested. Regarding the reliability, Cronbach’s alpha coefficient was .96, more significant than the recommended value of .60 (Bagozzi & Yi, 1988). As for the validity of the 28 items, the loading values ranged from .61 to .79, which were statistically significant and greater than that of the recommended value

of .45 (Bentler & Wu, 1993; Joreskog & Sorbom, 1989). A paired-samples t-test was conducted to explore the changes in students' overall improvement of self-efficacy of argumentative essays. Then a one-way ANCOVA was conducted to determine a statistically significant difference between the experimental and control group.

## 4 Results

### 4.1 Students' Overall Improvement of Self-efficacy

Table 1 displays the comparison results of the students' perceptions of self-efficacy of English argumentative writing before and after the two knowledge-building learning activities. A paired-samples t-test was conducted in five dimensions: ideation, argumentation ideation, conventions, self-regulation, and argumentation self-regulations. First, there was a significant difference in the scores for students' perceptions of self-efficacy of English argumentative writing on Ideation ( $M=50.9$ ,  $SD=12.81$ ) and after the two KB learning activities on Ideation ( $M=67.7$ ,  $SD=16.92$ );  $t(65) = -9.33$ ,  $p < .001$ . Next, there was a significant difference in the scores for students' perceptions of self-efficacy of English argumentative writing on Argumentation Ideation ( $M=51.5$ ,  $SD=13.38$ ) and after the two KB learning activities on Argumentation Ideation ( $M=70.73$ ,  $SD=19.02$ );  $t(65) = -9.34$ ,  $p < .001$ . Then, there was a significant difference in the scores for students' perceptions of self-efficacy of English argumentative writing on Conventions ( $M=58.2$ ,  $SD=16.33$ ) and after the two KB learning activities on Conventions ( $M=63.6$ ,  $SD=15.14$ );  $t(65) = -2.62$ ,  $p < .05$ . And then, there was a significant difference in the scores for students' perceptions of self-efficacy of English argumentative writing on self-regulation ( $M=56.4$ ,  $SD=16.90$ ) and after the two KB learning activities on self-regulation ( $M=63.5$ ,  $SD=17.49$ );  $t(65) = -3.36$ ,  $p < .01$ . Finally, there was a significant difference in the scores for students' perceptions of self-efficacy of English argumentative writing on argumentation self-regulation ( $M=53.1$ ,  $SD=15.11$ ) and after the two KB learning activities on argumentation self-regulation ( $M=69.2$ ,  $SD=19.28$ );  $t(65) = -8.26$ ,  $p < .001$ . The results implied that the students believed that they had more confidence in improving their ideas, arguments, conventions, self-regulation, and argumentation self-efficacy in the argumentative essay writing tasks after finishing the two knowledge-building learning activities.

Table 1: The results of paired samples t-test of the five dimensions in the ASEWS

Dimensions		M	SD	t	p
Ideation	pretest	50.97	12.810	-9.33***	.000
	posttest	67.78	16.920		
Argument Ideation	pretest	51.54	13.328	-9.34***	.000
	posttest	70.73	19.021		
Conventions	pretest	58.23	16.330	-2.62*	.011
	posttest	63.69	15.145		
Self-regulations	pretest	56.44	16.906	-3.36**	.001
	posttest	63.56	17.492		
Argument self-regulations	pretest	53.19	15.116	-8.26***	.000
	posttest	69.28	19.280		

\* $p < .05$  \*\* $p < .01$  \*\*\* $p < .001$

## 4.2 The Effects of Knowledge Building Based Instruction on the Two Groups of Students' Self-Efficacy of English Argumentative Essay Writing

A paired-samples t-test was conducted to compare the five dimensions of the self-efficacy of English argumentative essay writing before and after implementing the two KB learning activities. As shown in Table 2, regarding the experimental group, there were significant differences in the scores for Ideation before ( $M=54.8$ ,  $SD=11.69$ ) and after the implementation of the two KB learning activities ( $M=80.1$ ,  $SD=11.28$ );  $t(65) = -10.7$ ,  $p < .001$ . Argumentation Ideation before ( $M=56.5$ ,  $SD=12.27$ ) and after the implementation of the two KB learning activities ( $M=84.6$ ,  $SD=12.88$ );  $t(65) = -12.3$ ,  $p < .001$ . Argumentation self-regulation before ( $M=57.5$ ,  $SD=11.59$ ) and after the implementation of the two KB learning activities ( $M=82.0$ ,  $SD=14.28$ );  $t(65) = -10.0$ ,  $p < .001$ . Similar results were also found in the control group. As shown in Table 2, there were significant differences in the scores for Ideation before ( $M=47.2$ ,  $SD=12.88$ ) and after the implementation of the two KB learning activities ( $M=56.1$ ,  $SD=12.48$ );  $t(65) = -4.7$ ,  $p < .001$ . Argumentation Ideation before ( $M=46.8$ ,  $SD=12.71$ ) and after the implementation of the two KB learning activities ( $M=57.6$ ,  $SD=12.48$ );  $t(65) = -4.0$ ,  $p < .001$ . Argumentation self-regulation before ( $M=49.1$ ,  $SD=16.98$ ) and after the implementation of the two KB learning activities ( $M=57.2$ ,  $SD=15.32$ );  $t(65) = -3.5$ ,  $p < .001$ . It is noted that there was also a significant difference in the scores for Self-regulations before ( $M=49.4$ ,  $SD=16.68$ ) and after the implementation of the two KB learning activities ( $M=59.9$ ,  $SD=17.57$ );  $t(65) = -3.6$ ,  $p < .001$  in the control group. The results implied that the students in both experimental and control groups have reflected in their beliefs about their abilities to generate ideas or ideas related to argumentation and have learned how to manage their anxieties and emotions that can accompany argumentative essay writing.

Table 2: The Results of Two Groups of Students with the Paired Samples T-Test

Groups	Dimensions	Experimental Group ( $n=32$ )				Control Group ( $n=34$ )			
		M	SD	<i>t</i>	<i>p</i>	M	SD	<i>t</i>	<i>p</i>
	Ideation Pretest	54.8	11.69	-10.7***	0.00	47.2	12.88	-4.7***	0.00
	Ideation Posttest	80.1	11.28			56.1	12.48		
	Argument Ideation Pretest	56.5	12.27	-12.3***	0.00	46.8	12.71	-4.0***	0.00
	Argument Ideation Posttest	84.6	12.88			57.6	13.78		
	Conventions Pretest	61.7	14.25	-1.9	0.58	54.9	17.65	-1.7	0.09
	Conventions Posttest	67.5	16.43			60.0	13.02		
	Self-regulations Pretest	63.9	13.82	-1.1	0.25	49.4	16.68	-3.6***	0.00
	Self-regulations Posttest	67.4	16.81			59.9	17.57		
	Argument Self-regulations Pretest	57.5	11.59	-10.0***	0.00	49.1	16.98	-3.5***	0.00
	Argument Self-regulations Posttest	82.0	14.28			57.2	15.32		

\*\*\* $p < .001$

In order to understand the effects of the two KB learning activities on the two groups of students' perceptions of self-efficacy, a One-way ANCOVA was conducted to determine a statistically significant difference between the control group and experimental group on the

five dimensions in the self-efficacy of English argumentative essay writing controlling for the pretest. As shown in Table 3, the adjusted means of the posttest were then further analyzed, excluding the effects of the pretest.

Table 3: Adjusted Means of the Two Groups of Students' Self-Efficacy of English Argumentative Essay Writing

Dimensions	Experimental Group	Control Group
Ideation	78.91	58.36
Argument Ideation	82.61	59.55
Conventions	66.28	61.24
Self-regulations	63.58	63.54
Argument self-regulations	79.50	59.65

Before conducting the One-way ANCOVA, the homogeneity of regression coefficients within groups was also tested. As shown in Table 4, the  $p$  values of the five dimensions were more remarkable than .05, and there were no significant differences. Thus, the null hypothesis was accepted. The coefficients of the covariant (the pretest of the five dimensions) and the dependent variables (the posttest of the five dimensions) will not be different about the independent variant (KB learning activities).

Table 4: The Test Results of the Homogeneity of Regression Coefficients within Groups

Dependent Variables	F	df1	df2	$p$
Ideation	.164	1	64	.687
Argument Ideation	.193	1	64	.169
Conventions	.104	1	64	.748
Self-regulations	.040	1	64	.843
Argument self-regulations	.097	1	64	.757

Table 5 shows the results of the two groups of students' analysis of covariance. The results showed a significant effect of the opportunistic collaboration structure on the overall scores ( $F=17.611$ ,  $p=0.000$ ) in English argumentative essay writing self-efficacy after controlling for the pretest. In addition, there were significant effects of the opportunistic collaboration structure on Ideation ( $F=57.528$ ,  $p<.001$ ); Argumentation Ideation ( $F=49.503$ ,  $p<.001$ ); and Argumentation Self-regulation ( $F=39.859$ ,  $p<.001$ ) in the ASWES after controlling for the pretest. However, there were no significant effects on Conventions and Self-regulation. It was revealed that after the two KB learning activities with different structures (experimental group=opportunistic collaboration; control group=fixed small-groups), the experimental group had more confidence to generate ideas and ideas related to argumentation, had more confidence to manage the anxieties and emotions during their argumentative essay writing tasks. However, the results also suggested that the two groups had no difference in the conventions (mechanics) or self-regulations after using different knowledge-building learning structures.

Table 5: The Results of the Two Groups of Students' Analysis of Covariance

<b>Dependent Variables</b>	<b>Sum of Squares</b>	<b>df</b>	<b>Mean square</b>	<b>F</b>	<b>p</b>
Ideation	6421.27	1	6241.27	57.52***	0.000
Argument Ideation	7599.63	1	7599.63	49.50***	0.000
Conventions	401.66	1	401.66	2.14	0.148
Self-regulations	0.02	1	0.02	0.00	0.993
Argument self-regulations	5988.79	1	5988.26	39.85***	0.000
Overall	2201.52	1	2201.52	17.61***	0.000

\*\*\* $p < .001$

## 5. Discussion

### 5.1 Students' Overall Changes of Argumentation Self-efficacy Writing

The results derived from the questionnaire in this study were analyzed quantitatively by adopting a paired samples t-test. As for the ideas generation (ideation and argument ideation) dimensions, Bruning et al. (2013) have argued that they showed the writers' judgments of their ideas' availability, quality, and ordering. The findings in this study revealed that after the students experienced the two KB learning activities, they had more confidence to generate more ideas or ideas for their argumentative writing. The finding is also consistent with the three KB principles: Real ideas and authentic problems, improvable ideas, and idea diversity which were proposed by Scardamalia (2002). Students have more confidence in identifying their problems, treating their ideas as improvable artifacts, and understanding the ideas surrounding them, including the opposing ideas. The third dimension in ASEWS is self-efficacy for writing conventions. Conventions refer to a set of generally accepted standards for expressing ideas in writing in the target language (Fayol, Almargot, & Berninger, 2012). Conventions provide the structures within which writers direct their ideas effectively (Bruning et al., 2013). This study showed that overall, students believed in more confidence in using the writing conventions. Regarding the self-regulation dimensions (self-regulation and argument self-regulation), they reflected the writers' confidence in directing themselves successfully in the writing tasks (Zimmerman & Bandura, 1994; Zimmerman & Kitsantas, 2007). As Bruning et al. (2013) have discussed, self-regulation skills are needed because writing can be difficult and tedious. If writers have better self-regulation skills, they might have the ability to manage the anxieties and emotions that accompany the writing. This study also revealed that the students perceived better self-regulation skills after they experienced the KB learning activities.

### 5.2 The Effects of Knowledge Building Based Instruction on the Two Groups of Students' Self-Efficacy of English Argumentative Essay Writing

In order to understand the effects of the two KB learning activities on the two groups of students' perceptions of self-efficacy, a One-way ANCOVA was conducted to determine a statistically significant difference between the control group and experimental group on the five dimensions in the self-efficacy of English argumentative essay writing controlling for the pretest. The results showed a significant effect of the progressive knowledge building setting on the overall scores in the self-efficacy of English argumentative essay writing after controlling for the pretest. The experimental group with the progressive knowledge building

setting, especially the opportunistic collaboration environment designed in KBLA2, showed more confidence than the control group with the conventional setting. As Zhang et al. (2009) proposed, the opportunistic collaboration led to more pervasive, flexible, and greater knowledge advances. Students in this setting may have more chances to generate ideas. The major findings in this study also revealed that students in the progressive knowledge building setting had a higher level of confidence in ideation and argument ideation than students in the conventional setting. It should also be noted that there were no significant effects on conventions and self-regulation. The experimental and control groups students might not differ in their confidence in the lower-level process. This situation deserves more attention from knowledge building and EFL educators. The finding implies that students believed they had higher confidence in their argumentative essay writing in several dimensions, but not the conventions dimension. The result may suggest that more research may be needed to help students improve their confidence when writing argumentative essays.

## **6. Conclusion**

Argumentative essay writing has been gaining more and more attention. This study is the first attempt to adopt knowledge-building-based instruction to see if learners have higher writing self-efficacy. The findings in this study may validate the effects of knowledge-building pedagogy and its instructions on the higher education argumentative essay writing courses. The findings may also offer some suggestions to the English educators or researchers. Although the present study has yielded findings with theoretical and practical implications, its design is not without flaws. First, not everyone is familiar with the knowledge-building process. The biggest challenge is finding evidence that can be adapted to their arguments. Second, students' informal reasoning abilities are not well trained. A more detailed course design should consider training students' informal reasoning before conducting the KB-based instruction. The present study has demonstrated that KB-based instruction benefits students' argumentative essay writing self-efficacy. However, the relationship between their self-efficacy and essays performance was not discussed. Further research is therefore warranted in the relationship.

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***Public Service Announcement In Indonesia and Malaysia: A Semiotic Analysis***

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**Abstract**

The purpose of this study was to analyze how public service announcements: social media and newspapers were applied in Indonesia and Malaysia. The method of this study used a qualitative research approach. Social media and newspapers were analyzed as the objects of this study. The researchers used documentation and observation in collecting data and used Barthes' theory to find out how the public service announcements were used. The result of this study shows that public service announcements are communicated in Indonesia and Malaysia have some similarities and differences. They can be seen from languages, contents, colors, models, media, designs, and places of public service announcements. This paper presents an analysis framework and rarely do any studies defy such attempts critically.

Keywords: Semiotics Analysis; Public Service Announcement; Publishing

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## Introduction

The public announcement seems purposeful and beneficial to inform the societies toward the significant information. Therefore, the public service announcements are advertisements published in local newspapers, social media, broadcast on local radio, public facilities, television, or sent as mailings to announce public comment periods for EPA decisions and major project milestones. Public service announcement is not meant to be used to provide updates on site progress or to inform or educate the public about specific site activities. A public service announcement has to present a simple, clear message in a conspicuous place (Wang and Lund 2020).

A service of the public announcement which is supported with representative pictures or captions functioned to bring a serious subject to the attention of the audience; a public-interest message that is freely shared by the media to enhance public awareness (Leksono et al. 2020). Furthermore, PSAs (public service announcements) have progressively become a part of our daily lives. These messages, aimed at correcting social behavior patterns and bringing public notice to particular societal ills, may be found almost everywhere (Malenova 2018).

Likely, Studies on public service announcements have been conducted (Jolani, et al., 2017; Puppin, 2020; Trubyk, 2010: and Weber, 2013). Jolani, et al., (2017), views the semiotics aspect as an essential aspect of preparing new structures for mass media programming, including public service announcement. the study examined the semiotics of constructive elements and factors of public service announcement on a radio channel focusing on health. Additionally, Puppin (2020) examined environmental public service announcement as an essential yet underused aspect for environment-related communication in China. The environmental public service announcement uses an array of culture-related elements as intertextual reference or visual metaphors to promote awareness of wildlife protection.

To be expected of semiotic agreement on publics, Trubyk (2010) and Weber (2013) reported the design of the campaign and found that the interpretation of both the marginalized at-risk and law-abiding subject position is working within the public service announcements. Similarly, Matulewska and Wagner (2021) describe semiotics for public signs should be relatively simple to understand and sufficiently substitute written signs.

The focus of the present study involves recent research relating to the identities and functions of languages in public service announcements. Signs used in the public area for public service announcements involve the use of images or icons that communicates meaning to the public, however, the meaning is not the sign itself. Therefore, This paper first gives a diachronic overview of Malay and Indonesia policy leading up to the present situation, then analyzes the collected data in social media and newspapers. Thereafter, the survey is presented, including examples of Public Service Announcements.

Based on the phenomenon that occurred, this research comprises a semiotic examination of texts applicable to public service announcements in Malaysia and Indonesia. Based on this reverberation, the researchers chose to apply the ideas from Barthes' semiotic theory, as a structure for the examination of the signs chosen as samples of public service announcements that are utilized in both countries.

To serve the supportive thought and notion, the researcher investigated and cited numerous references which are relevant and significant to highlight the topic selected.

## Language Policy and Practice in Malaysia and Indonesia

To support nationality, Malaysia's government implemented several language policies to promote the national language for several decades. The government permeated the new system of schools which was categorized into two types of schools in 1957, they were national and national-type schools. The national school was employing the Malay language as the medium of instruction as supported by the government, while the national-type schools used other vernacular languages like English as the instruction medium (David, Dealwis, and Kuang 2018). However, in the Indonesian education system, English is not taught as a second language but is taught as a foreign language. Indonesians have their official language and that is Bahasa Indonesia or the language of Indonesia. Most Indonesians speak one of more than 700 indigenous languages; That is the reason why Indonesians use English as a foreign language. Besides, English is only accepted on the surface level such as high-class society but resisted at the cultural and psychological levels. People who stay in rural areas do not speak English. They use their mother tongues for communication (Zein et al. 2020).

In accordance with language practice, semiotic in some countries sometimes supports language qualities established to give information. As academics have worked to provide a more nuanced understanding of these landscapes, this field has increasingly been referred to as Semiotic Landscape studies (Goebel, 2020). Purposefully, Advertisements for public services are the product of cultural construction involving the representation, creation, and implementation of ideas in society. The government, authorized parties, commercial or non-commercial groups, or institutions may issue public service advertisements to achieve a social or socioeconomic aim (Agustia and Subratha, 2021).

### Language Use in Public Service Announcements

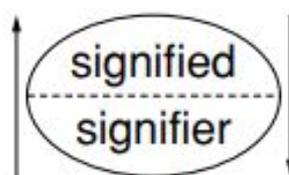
Public service announcements (PSAs) are designed to inform and educate the general public in order to effect social change where this sign could be easily found in public.

**Social Media.** Videos, sounds, photographs, articles, and other forms of media are used to make social networking service adverts as appealing as possible (Agustia and Subratha, 2021). Social media is widely used, and it is becoming increasingly intertwined with a variety of societal domains (van Dijck and Poell, 2015). Some references are then read; Paek et al (2011); Maidin et. al (2019); Jerome et al (2021). Maidin et. al (2019) at the first examined the public perspective of public service announcement by Malaysian government through social media. Upon this study to find out whether the public are aware announcements made by the government, it was found that people are well informed and aware of social media PSAs even though they do not follow the government's account.

**Newspapers.** Newspapers in Public Service Announcement are considered substantial where the Newspapers serve as a source of news, education, entertainments, communal ambitions, social controls, and language trainings, among other things. The use of language in a newspaper's news article can be deduced from both shape and content of the text, written quickly and dynamically in order to attract, impress, and pique reader's interest (Muhammadiyah and Hamsiah, 2020). Newspapers have an important role in raising public awareness; Semiotics is used in newspapers to infer meaning and ideology from the use of signs and symbols (Sattar et al. 2020). Additionally, The language used for the Public Service Announcement was both Arabic and English and the topic was regarding forest and natural preservation was reported in the study under Mliless (2019).

**Barthers’ Semiotic Theory.** The study of semiotic or symbol could be interpreted as the study about signs which semiosis is the study of sign processes, which are any action, behavior, or process involving signs, where a sign is defined as anything that communicates meaning to the sign's interpreter that is not the sign itself (Muhammadiyah and Hamsiah 2020). Consequently, it concerns how people understand and how they sign and symbols to make meaning (Mohamed et al. 2019). In a semiotic sense, signs take the form of words, images, sounds, gestures, and objects (Sattar et al. 2020). Besides, Saussure stated that a linguistic sign is not a link between a thing and a name, but between a concept (signified) and a sound pattern (signifier). The model of Saussure’s (1959) sign can be shown in the following:

Figure 1: Saussure’s model of sign (Adopted from Chandler: 2007, p.33)



In concern with linguistic, Roland Gerard Barthes (1915-1980) continued and developed Saussure’s theory about signs. Moreover, Barthes explored the essence of the sign system that goes beyond the rules and grammar for organizing the meaning of complex texts, hidden, and dependent on the culture, i.e., denotation and connotation are two main determinations of this theory. Connotation and denotation are two principal methods of describing the meaning of words. This idea is known as the “order of signification”. Barthes’ semiotic theory is as follows:

Table 1: Sign Map of Roland Barthes (Adopted from Ananda: 2019, p.25)

Signifier	Signified
<b>Denotative Sign</b>	
by	Connotative Signified
<b>Connotative Sign</b>	

In short, Barthes’ theory explanation is concluded as follows: 1) denotation is the interaction between signifier and signified in the sign, and between sign and referent (object) in the reality; and 2) Connotation is the interaction that occurs when a sign is related to the feeling or emotion of the reader of their cultural value. Furthermore, a sign is more open in its interpretation of connotation than denotation.

**Method**

The research used a qualitative approach to practically serve the objective data. Methodologically, this research employed Evaluative research where it belongs to qualitative research concerned with issues surrounding how well does it work (Ritchie & Lewis, 2003). As long as the method is procedurally used evaluative approach, this research aims to 1) to identify the factors of intervention and the effects of taking a subject of the study; 2) to examine the nature of the groups’ requirement, and 3) to explore a range of organizational aspects of intervention and the context of intervention. A recommendation is significant to be publicly served. Darlington & Scott (2002) presented several procedures to write recommendations after evaluation research: 1) All aspects of evaluation are fair; 2) The possible phenomenon must be

reported before serving the information; 3) different sources are possibly needed; 4) A good relationship must be kept; 5) a context-based and realistic are a must for serving the recommendation; 6) setting a limitation is hoped, and 7) the recommendation is easily understood. The data of the research were from the public service announcements on social media and newspapers implemented by Malaysia and Indonesia. The techniques of collecting data were documents and observation. As Creswell (2012: p.223) stated: a valuable source of information in qualitative data can be documented. Documents consist of public and private records that qualitative researchers obtain about a site or participants in a study.

**Conclusion**

**Semiotic of Public Service Announcements Used in Indonesia**

Some phenomena are discovered to realize the theory of semiotic in certain public announcements such as social media and newspapers.

**Social Media**

Social media, generally, is claimed as computer-based technology that facilitates the public with ideas, thoughts, and information via virtual networks and communities. By design, social media is internet-based and gives people quick electronic communication of contents. Besides, the following table represented a sample of 15 announcements published on social media found by the researchers:

Table 2: Semiotic Analysis of PSA in social media of Indonesia

No	Signifier (Picture)	Types of Announcement	Verbal Sign	Non-Verbal Sign	Signified (Denotative)	Connotative Analysis
1.		Education Information	Language Features: noun phrases, noun, verbs, emotive language  Sentence structure: Imperative, Declarative	Color: Blue, light blue  Picture: Someone presenting into a group, someone handing over a paper, a folder organizer	This is to inform students from both Indonesian and foreign students currently studying in Indonesia regarding the occasion to sign up for the Bali Democracy Students Conference III	Color: the blue and light blue color resembles a bright and casual atmosphere  Picture: Someone presenting into a group resembles the conference itself, someone handing over a paper resembles the admission process, the folder organizer resembles the required documents

Based on table 2, it can be seen that numerous announcements posted on social media are put on platforms popular to Indonesian netizens. The more common the social media platform used; the more netizen might see the PSAs posted. The PSAs on social media also use verbal signs on their announcements supported with relevant pictures. The findings showed that both denotative and connotative expressions are typically employed.

### Newspapers

Newspapers usually contain promotions, products, goods, services, jobs, and/or events made by producers or initiators which are delivered through media to public. Announcements are designed and customized creatively to get people interested in buying and using the products or services. The same principle goes with PSAs an announcement to get readers' attention. The researchers analysed twenty samples of the announcement which were written in the newspapers; yet, the following table represented some of announcements on newspapers.

Table 3: The Semiotic Analysis of Indonesian newspapers

No .	Signifier (Picture)	Types of Announcement	Verbal Signs	Non-Verbal Signs	Signified (Denotative)	Connotative Analysis
1		Healthy announcement	Smoking doesn't protect against Covid-19. Smoking is deadly. More than 8 million people die each year as a result of tobacco use. People with underlying health conditions such as heart disease, which can be exacerbated by smoking, are at higher risk of severe covid-19.	<p>A. colorful picture (a man with his cigarette) symbolizes how often public people consume various cigarettes.</p> <p>B. the bolded (yellow) information is used to highlight the stressed point of information.</p> <p>C. the mark or sign circle (colored with red) signifies the vital prohibition</p>	This announcement announces that smoking routine doesn't protect someone from coronavirus dangers	<p>A. This announcement has a purpose to inform the public readers especially for those who are smoking where this custom doesn't give them a safe from Covid19.</p> <p>B. to represent the dangers, the writer gave the symbol red color supported with the circle which means this icon signifies the</p>

				D. the logo/icon written World Health Organization (WHO) represented the official company who is authorized to determine the information		danger of prohibition.
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An announcement on table three used text and picture without any variation of color on the background. Besides, PSAs in Indonesia are delivered through some media.

**Semiotic of Public Service Announcements Used in Malaysia**

Several services which publicly announced to public in Malaysia can be found on social media and newspapers.

**Social Media**

The researchers found several announcements established on social media in Malaysia. Social media serves communication, community-based input, interaction, content-sharing, and collaboration-focused websites and applications. Here are some findings related to social media posts; the sample is a representation:

Table 4: The Semiotic Analysis of PSA in Malaysian Social Media

No .	Signifier (Picture)	Types of Announcement	Verbal Signs	Non-Verbal Signs	Signified (Denotative)	Connotative Analysis
1		Ministry of Health Information	Language Features: noun phrases, noun, verbs, emotive language  Sentence structure: Declarative,	Color: Black and white; The objects are sky blue and pink on some parts of the object and the declarative sentence.	Malaysian citizens should take mental health issues seriously, and ask for help if needed.	The color selection resembles an enlightening salutation message.  The man looking down and resembles someone

			Imperative	Picture: A person closing his eyes while looking down and some crayon scratch on his head.		having mental health issues
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The researchers analysed 15 samples of announcements sent to some public accounts of social media where this application commonly produced a significant declaration to be consumed by readers. The placement of PSA on social media of Malaysia is interesting, clear, and good for people. The language used English with some Malaysian spellings.

### Newspapers

Newspapers are appropriate or suitable to declare written expression to readers. This functioned to gain the readers’ attention toward the information highlighted. The following information represented announcements found on newspapers:

Table 5: The Semiotic Analysis of PSA In Malaysian Newspapers

No .	Signifier (Picture)	Types of Announcement	Verbal Signs	Non-Verbal Signs	Signified (Denotative)	Connotative Analysis
1		<b>Weekly announcement</b>	I, Tan Sri Dato’ Kam Woon Wah (NRIC No.291129-10-XXXX) do hereby irrevocably, unconditionally, and irreversibly declare and state that I had DISOWNED AND DISINHERITED my son, Dato’ Sri Andrew Kam Tai Yeow (NRIC No. 620202-10-	Capital Letter Of The Title ‘Announcement’	Announcement about someone who reveals something	a. This announcement is about someone named Tan Sri Dato’ Kam Woon Wah who confess that he had disowned and disinherited his son and grandson. b. Emphasizing the title so it can be more eye-catching.

			XXXX) and his daughter Hannah Kam Zhen Yi (NRIC No. 911130-14- XXXX)			
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It is shown that PSAs in Malaysian newspapers are put on newspapers page visibly where the readers could see it clear. Twenty announcements were analysed in this research.

### **Similarities and Differences between Semiotics of PSAs in Malaysia and Indonesia**

After announcements have been displayed on numerous tables, researchers distinguish public announcements from both countries in certain spots.

#### **Social Media**

The similarities of PSAs on social media in Malaysia and Indonesia; the announcements are very clear, concise, and brief messages. Both PSA posts on Indonesian and Malaysian social media emphasize how to deliver such a piece of detailed information in the simplest way possible. While for the differences of PSAs on social media in both countries are on images and colors. PSA posted on Indonesian social media has a background image with various cheerful colors while PSA on Malaysian social media sometimes posts creepy atmosphere to raise public awareness regarding their safety. An example of this kind of PSA is those PSA posted by the Malaysian Police Force.

In addition to the theory used, this report is in line with how the analysis runs such denotative and connotative that extremely functioned to determine the context of messages. The announcements published through social media generally inform an entertainment that is designed impressively. A periodical publication offering textual information about current events that are typically typed in black ink on a white or grey backdrop.

#### **Newspapers**

It is seen that PSAs in Indonesian newspaper have various colour, using charts, figures, and image to ensure readers' understanding and perhaps catching reader's attention. Indonesia newspaper announcements use simple language. While, PSAs in Malaysia newspaper are usually using text only without any variation of colour on their background and do not use some images. Moreover, both countries also use very minimal non-verbal signs. The language style in both countries' PSA is quite the same. Photos are present to provide the context of news. Large fonts are used for the headline and white background made it easy to read, Public service announcements made by announcers in any country or a particular area should make public or people get the information. Public service announcements posted on social media and newspapers in Malaysia and Indonesia are already appropriate for societies to receive either announcement or message.

It could be suggested that this research could, furthermore, be the object of formal sources to acknowledge the study of semiotic for teachers and students. For further researchers, the

findings in this study are not fully perfect and need further investigation. Even though, this study can be a reference for other researchers who wish to use semiotic analysis by using Barthes' theory. It would be better if other researchers replicate this study by comparing other languages, texts, and cultures of other countries.

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***Education Resilience in Facing Pandemic Covid-19 (Study Case: Batam City, Indonesia)***

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**Abstract**

The pandemic covid-19 in Indonesia had an impact on the education system. The Ministry of Education has produced the policy regarding the acceleration of coronavirus spread prevention in form of policy Number 3/2020 and Ministerial Order of 36962/MPK.A/HK/2020 by conducting online learning. The use of technology will be needed to support the policy. However, many problems have existed in the community, such as internet accessibility, inadequate facilities and infrastructure, human capacity, and capability in using technology, limited student interaction, lack of enthusiasm in learning, and other economic factors. The problem exists because of the process of transition in the learning process. The research aims to analyze the phase of transformative learning which occurs in Batam city and how it works. The author uses Mezirow phases of Transformative learning analysis which consists of a disorienting dilemma, a self-examination, a critical assessment, recognition, exploration, planning of a course of action, acquisition of knowledge, provisional trying of roles, the building of competence self-confidence, and a reintegration. A mixed method was conducted with the method of explanatory design using sequential phase. The primary and secondary data was used to answer the research question which taken through survey and questionnaire techniques to the sampling. The analysis is using multiple regression for quantitative and qualitative descriptive analysis by model of transformative learning. The results obtained that the phase of transformative learning in Batam city still not reach reintegration due to many obstacles. Meanwhile, there are possibilities to reach the reintegration of the learning process.

Keywords: Digitalization, Education, Pandemic Covid-19, Transformative Learning

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## Introduction

The emergence of the coronavirus in Indonesia since early 2020 has an impact on education. Various policies from the government Republic of Indonesia issued to adjust the situation and conditions. One of the policies in the field of education is through the Circular of the Minister of Education and Culture, Research and Technology of the Republic of Indonesia Number 3 of 2020 concerning Prevention of Corona Virus Disease (Covid-19) in Education Units and Attachment 36962/MPK.A/HK/2020 regarding online learning and work from home to prevent the spread of Corona Virus Disease (Covid-19). Refer to the circular letter from the Ministry of Education and Culture, Research and Technology, the learning process is changing to be online learning.

The implementation of online learning policies requires of technology. The development of technology that facilitates virtual meetings without distance and time restrictions becomes an alternative for learning process during the pandemic. In this case, technology has an important role as a medium of interaction to facilitate the transfer of knowledge between teachers and students.<sup>1</sup> Some of the social media which can be used for online learning are Google Classroom, Google Meet, WhatsApp, YouTube, and Zoom.<sup>2</sup> In addition, the presence of technology has a good impact on digital transformation in the education sector.<sup>3</sup>

The use of technology in online learning sometimes found the problems, either for teacher, student, or parents. That is why those actors need good collaboration.<sup>4</sup> Problems experienced by student, teacher, and parents such as mastering technology, additional work for parents, communication or interaction, and unlimited working hours for teacher as they have to communicate and coordinate with student and parents.<sup>5</sup> The problems are in the implementation of digital learning, learning models adjusted to the situations, learning strategies, to the level of accuracy in the selection of learning media.<sup>6</sup> Adequate structure and infrastructure are also needed in online learning, such as uneven internet networks, network stability, and internet quota price.<sup>7</sup>

The report shows that many students encountered challenges and obstacles in online teaching and learning activities.<sup>8</sup> During the learning process, the students found lack of interest due to

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<sup>1</sup> Salsabila, U. H., Sari, L. I., Latif, K. H., Lestari, A. P., & Ayuning, A. (2020). Peran Teknologi Dalam Pembelajaran Di Masa Pandemi Covid-19. *Jurnal Al-Mutharahah: Jurnal Penelitian dan Kajian Sosial Keagamaan*, 17(2), 188-198.

<sup>2</sup> Pitaloka, A. D. (2020). Pemanfaatan Sarana Prasarana dan Peran Teknologi Informasi sebagai Solusi Pembelajaran Daring di Masa Pandemi Covid 19. *Cetta: Jurnal Ilmu Pendidikan*, 3(3).

<sup>3</sup> Astini, N. K. (2020). Tantangan Dan Peluang Pemanfaatan Teknologi Informasi Dalam Pembelajaran Online Masa Covid-19. *Cetta: Jurnal Ilmu Pendidikan*, 3(2).

<sup>4</sup> Mulyadi. (2021). Pembelajaran Daring Bahasa Inggris Pada Siswa SMP: Sebuah Tantangan Pembelajaran. *Journal On Teacher Education*, 2(2).

<sup>5</sup> Purwanto, A., Pramono, R., Asbari, M., Hyun, C. C., Wijayanti, L. M., Putri, R. S., & santoso, P. B. (2020). Studi Eksploratif Dampak Pandemi COVID-19 Terhadap Proses Pembelajaran Online di Sekolah Dasar. *EduPsyCouns: Journal of Education, Psychology and Counseling*, 2(1).

<sup>6</sup> Arikarani, Y., & Amirudin, M. F. (2021). Pemanfaatan Media dan Teknologi Digital Dalam Mengatasi Masalah Pembelajaran Dimasa Pandemi. *Edification Jurnal*, 4(1), 93-116.

<sup>7</sup> Surahman, E., Santaria, R., & Setiawan, E. I. (2020). Tantangan Pembelajaran Daring di Indonesia. *Kelola: Journal of Islamic Education Management*, 5(2), 89-98.

<sup>8</sup> Prijowuntato, S. W., & Wardhani, A. M. (2021). Analisis Kesan, Tantangan, Hambatan, dan Harapan Pembelajaran Daring di Era Pandemi Covid 19. *Jurnal Inovasi Pendidikan Ekonomi*, 11(1).

the feeling of loneliness.<sup>9</sup> Students also complained that during online learning, learning activities were dominated by assignments rather than material delivery.<sup>10</sup> Students' learning motivation is disrupted due to lack of mastery of technology, difficulty in accessing the internet, lack of supporting facilities, and a less conducive environment.<sup>11</sup>

Besides students, the challenge comes from the teacher. During online teaching and learning activities, teachers are required to innovate for the material delivery as some students have limited economic conditions and are unable to adjust the facilities needed in online learning. As for many teachers who are in remote areas or who are much older in age, they find it difficult to adjust to existing learning, because they have limited ability to operate technology.<sup>12</sup>

The role of parents is very important to replace the teacher's position in accompanying children's learning. However, it is not as easy as imagined, many parents complained about various things. Based on the survey conducted by the Tanoto Foundation regarding Distance Learning on 332 school principals, 1,368 teachers, 2,218 students, and 1,712 parents, it was found that 34% of parents of junior high school students admitted that they were tired of handling children's abilities and concentration, 24% had difficulty understanding the material. children, 28% find it difficult to explain children's material.<sup>13</sup>

Through all the existing problems, it shows that Indonesia still having difficulties in online learning. Researchers from the Indonesian Institute of Sciences said that after one year of online learning, Indonesia was still having difficulty adapting to online learning.<sup>14</sup> Therefore, the author aims to analyze the transformative learning phase in Batam City Junior High School, as during online learning Education in Indonesia including Batam City experienced an unexpected transition, so an analysis based on transformative learning theory is needed to find out what phase it has reached.

## Theoretical Framework

Transformative learning is one of the theories about transformation in learning where students can adapt to existing circumstances. This theory was originally developed by Jack Mezirow. According to Mezirow, a person's learning process is not applying an understanding that was previously believed to be in an ongoing situation. So that he defines transformative learning as "an orientation which states that the way students interpret and reinterpret what is felt by the senses is to seek meaning and learn".<sup>15</sup>

<sup>9</sup> Yunitasari, R., & Hanifah, U. (2020). Pengaruh Pembelajaran Daring terhadap Minat Belajar Siswa pada Masa COVID 19. *EDUKATIF: Jurnal Ilmu Pendidikan*, 2(3).

<sup>10</sup> Sudewo, B., Gojali, M., & Raditya, A. (2021). Dampak Kegiatan Pembelajaran dan Penugasan Siswa Saat Pembelajaran Daring. *Lentera: Jurnal Pendidikan*, 16(1).

<sup>11</sup> Juliya, M., & Herlambang, Y. T. (2021). Analisis Problematika Pembelajaran Daring dan Pengaruhnya terhadap Motivasi Belajar Siswa. *GENTA MULIA: Jurnal Ilmiah Pendidikan*, 12(1).

<sup>12</sup> Hakim, M. F. (2021). Peran Guru dan Orang Tua: Tantangan dan Solusi dalam Pembelajaran Daring pada Masa Pandemi COVID-19. *Riwayat: Educational Journal of History and Humanities*, 23-32.

<sup>13</sup> KOMPAS. (2020, November 15). Hasil Survei: Berikut 3 Masalah Orangtua Dampingi Anak BDR. Retrieved from KOMPAS.com: <https://edukasi.kompas.com/read/2020/11/15/143509971/hasil-survei-berikut-3-masalah-orangtua-dampingi-anak-bdr?page=all>

<sup>14</sup> Santoso, Y. I. (2021, July 30). Peneliti LIPI sebut pembelajaran daring belum berjalan maksimal, ini alasannya. Retrieved from Kontan: <https://lifestyle.kontan.co.id/news/peneliti-lipi-sebut-pembelajaran-daring-belum-berjalan-maksimal-ini-alasannya-1>

<sup>15</sup> Mezirow, J. (2018). *Transformative Learning Theory*. In *Contemporary Theories of Learning* (2nd Edition ed., p. 15). Routledge.

Simply in the learning process, the student is not only looking for current situation, but also reflect the previous situation. Throughout the evaluating previous understandings and changing their views by the process of critical reflection. The student will be able to criticize their past understanding in the present, so that they can understand themselves and learn for the better. The key to transformative learning theory is understanding past perspectives, the ability to read structures, understand and accept new perspectives. In transformative learning theory there are 10 phases that students follow in changing their understanding and views after getting some information, including a disorienting dilemma; a self-examination; a critical assessment; recognition; exploration; planning of a course of action; acquisition of knowledge; provisional trying of roles; building of competence self-confidence; a reintegration.<sup>16</sup>

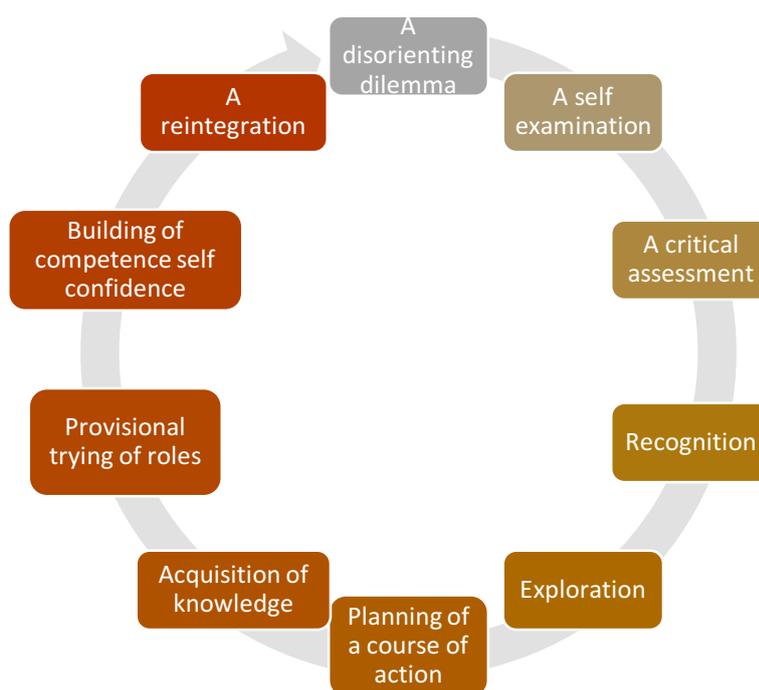


Figure 1. Phase of Transformative Learning Theory

Based on the diagram above, the stages of transformative learning have 10 phases:

- A Disorienting Dilemma

According to the Cambridge dictionary, dilemma is a difficult situation for someone to choose between two different things. The phase in which the learner finds that what is currently found is different from his experience so that there is a dilemma in himself to consider what he found.

- A Self-Examination

Merriam Webster dictionary refers self-examination as a condition for someone to do introspection. students begin to self-examine their previous understandings and when associated with newly perceived dilemmas.

<sup>16</sup> *ibid*

- A Critical Assessment

A critical stage where students review comprehensively and accept that previous understandings are not appropriate and are open to receiving new information.

- Recognition

The students realize that they are not alone in the process of change, and everyone experiences the same thing.

- Exploration

In the process of transformative learning, students can find out online learning that suits their skills.

- Planning of A Course of Action

Once students understand how beliefs about transformative, offline learning into online learning, they begin to plan action. The plan is to prepare the type of learning needed in online learning.

- Acquisition of Knowledge

This is where the real learning takes place as learners carry out their plans further in transformative learning. They do exploration, act in preparing online learning.

- Provisional Trying of Roles

Students are able to make their own decisions and have confidence in themselves. While following the transformative learning phase, students want to move forward and try to understand all the changes that are taking place in online learning.

- Building of Competence Self-Confidence

Self-confidence means trusting in your own judgment, capacities, and abilities. At this stage, students build confidence in the newly discovered information.

- A Reintegration

This phase allows the learner for their successful integration into life based on a new perspective (transformative offline learning to online learning). Students are fully prepared if they continue to do new online learning in the future.

## **Research Method**

The study uses a mixed method, namely quantitative and qualitative. Mixed method has the ability to capture and explain the phenomenon of the complexity of the teaching and learning process. Quantitatively, the effect of a learning method will be measured and qualitatively will

explore how students perceive learning strategies, influencing factors, and changes in students' thinking.<sup>17</sup>

The research uses explanatory design using sequential phases. Where researchers use quantitative methods to measure attributes, then continue qualitative methods to deepen findings.<sup>18</sup> Quantitative methods were used in student surveys, while qualitative methods were used in teacher and parent interviews. primary data is taken through survey techniques and structured interviews, while secondary data is taken from reports, journals, news, and books related to the research topic. Quantitative data analysis using the SPSS for iOS application with multiple linear regression methods and descriptive test. The variables tested were students' understanding of the material, mastery of technology, interest, and level of self-confidence of students as the independent variable and e-learning as the dependent variable.

A total of 110 students, 33 parents, and 10 teachers were selected by simple random sampling in all junior high schools in Batam. The number of junior high school students in Batam City is 48,067 and the number of teachers is 2,787. So that the research results can be generalized, the number of students who are used as samples is representative whose size is determined based on the Slovin formula. The following is the determination of the student sample size using the Slovin formula:

$$n = \frac{N}{1 + N(e)^2}$$

$$n = \frac{48.067}{1 + 48.067 (0.1)^2}$$

$$n = 99.79 \rightarrow \text{rounded to } 100$$

- n* : sample size
- N* : population
- e* : error tolerance  
10% for big population

Therefore, the sample taken by the researcher is 110 because it has been added up with a bias of 10%.

## Result

The multiple linear regression on variables of student's understanding, mastery of technology, student's interest, and student's level of confidence shows significant result towards variable of e-learning. The significance value was 0.000 or less than 0.05, so it can be concluded that simultaneously the variables of student's understanding, mastery of technology, student's interest, and student's level of confidence affect the of e-learning process with a significance level of 95%. Here are the results of the Multiple Linear Regression test:

	F <sub>value</sub>	F <sub>table</sub>	Sig.
Regression	6.202	2.46	0,000
df1 = k - 1 = 5 - 1 = 4			
df2 = n - k = 110 - 5 = 105			

Table 1. the Results of the Multiple Linear Regression Test

<sup>17</sup> Ponce, O. A., & Maldonado, N. P. (2015). Mixed Methods Research in Education: Capturing the Complexity of the Profession. *International Journal of Educational Excellence*, 111-135.

<sup>18</sup> *Ibid*

The significant influence shows the transformation of learning proses in the junior high school Batam City. Therefore, further analysis is needed to find out in depth about the transformation phase of learning that occurs in junior high schools in Batam City. Based on Mezirow's theory of transformative learning, there are 10 phases in the transformation of learning as follows:

- A Disorienting dilemma

The phase where the student finds that what is currently found is different from their experience, so there is a dilemma to be consider. The presence of the Covid-19 pandemic in early 2020 makes the Ministry of Education and Culture, Research and Technology Republic of Indonesia have to take quick steps in reducing the spread of the coronavirus by issuing a social restriction policy through online learning. The unexpected change caused shock experience for students, teacher, and parents.

Based on the survey results, as many as 57.6% of students agreed that they experienced shock at the beginning of e-learning during the pandemic. It is supported by the results of teacher interviews who admit that the dilemma occurs because the process of teaching and learning activities completely has changed. So that teachers experience difficulties in supervising students, less study time, changes in children's attitudes who become less disciplined, lack of student interest, digital literacy for teachers and students, and the adjustment process.

The results of interviews with parents of students found that 58.3% did not agree with the dilemma when starting online learning. The contributing factor is that the involvement of parents in teaching and learning activities takes place indirectly, besides that the technological factor in the case of parents of junior high school students in Batam is not too affected. The digital literacy of parents of junior high school students in Batam City is not bad compared to other areas as digital literacy is important for parents in facing the risks of online learning.<sup>19</sup>

- A self-examination

After experiencing the dilemma of changing learning methods, the student will enter the stage of self-examination for their previous understanding. Thus, they will easily determine whether to accept the presence method or reject it for their own reasons. Usually, students will begin to understand the current situation and reflect on themselves with the existing situation.

As many as 87.3% of junior high school students in Batam City admitted that they understand why online learning is needed in the midst of pandemic. It is shows that junior high school students in Batam City clearly know the dangers of the Covid-19 pandemic for health. Parents and teachers also agree to the implementation of online learning because the need for education is very important for children, on the other hand the pandemic is hard to stop. So, the policy to continue to do learning with a qualified method is very much needed.

However, teachers and parents do not denial that the problems arise in the midst of online learning. The results of the interviews show one of the main problems, namely the student's understanding was reduced. The reason is because there are many challenges exists, decrease student involvement, and disruption of student learning opportunities.<sup>20</sup>

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<sup>19</sup> Purnama, S., Ulfah, M., Machalia, I., Wibowo, A., & Narmaditya, B. S. (2021). Does digital literacy influence students' online risk? Evidence from Covid-19. *Heliyon*, 7(6).

<sup>20</sup> Hill, K., & Fitzgerald, R. (2020). Student Perspectives on the Impact of COVID-19 on Learning. *AISHE-J*, 12(2).

### - A critical assessment

The critical stage which the students review comprehensively and accepts that previous understandings were inaccurate, they are open to accept new method. In the case of online learning in Batam City, it focuses on how students understand the dangers of face-to-face learning in the midst of a pandemic. As the possibility of transmission of the covid-19 virus becomes higher if face-to-face learning is carried out. The following graph is the survey result of junior high school students in Batam City regarding the understanding of the dangers of face-to-face learning.

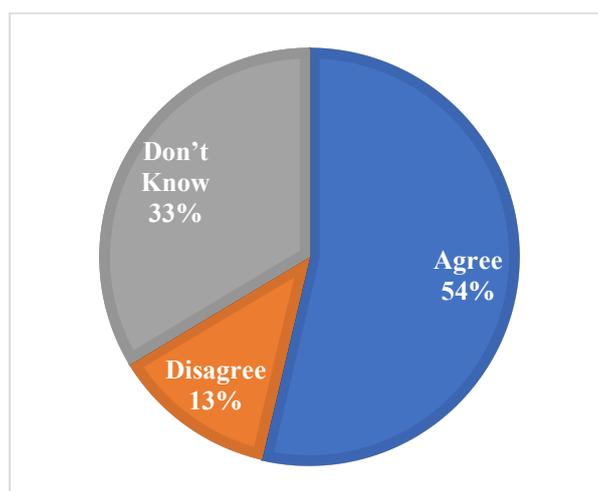


Figure 2. Survey on the Dangers of Covid-19

The diagram shows that 53.7% students agree if face-to-face learning is dangerous to be carried out during the pandemic. The same thing also happened to the results of teacher interviews who preferred online learning rather than face-to-face learning. The opposite analysis is shown by the large percentage of students' answers that do not know compared to disagree. It is shows that there are doubts and doubts about learning methods that are in accordance with the COVID-19 pandemic situation.

The parents had doubts in choosing online learning over face-to-face learning. The reason is because of the learning effectiveness, besides other solutions such as vaccines and the implementation of health protocols are considered solutions for face-to-face learning. A similar study was also experienced by Sumini, which found that parents have an important role in online learning and have an effect on student learning outcomes, unfortunately student learning outcomes are still below average because the role of parents which differ with role of teachers as the learning process before pandemic.<sup>21</sup>

### - Recognition

The government implements online learning based on the Circular of the Minister of Education and Culture, Research and Technology Republic of Indonesia Number 3 of 2020 concerning Prevention of Corona Virus Disease (Covid-19) in Education Units and Appendix 36962/MPK.A/HK/2020 which recommends that educational institutions apply online learning. This circular applies to all education units in Indonesia, so it can be said that almost

<sup>21</sup> Sumini. (2020). Pengaruh Peran Orang Tua dan Pembelajaran Daring Terhadap Hasil Belajar Siswa Pada Masa Pandemi Covid-19. Cetta: Jurnal Ilmu Pendidikan, 3(3).

all schools apply online learning. In such cases, students will enter the recognition stage or realize that the process of change experienced is also experienced by others.

However, the survey results 53.6% of students admitted that they did not know if online learning was also carried out in other schools. The reverse statement was made by parents and teachers, almost all of them admitted that they understood and were aware of the online learning policy by the Ministry of Education and Culture, Research and Technology. It shows that students do not have an interest in knowing more about the ongoing situation. But they still try to adjust to the situation without take part in dealing with what other schools are experiencing.

#### - Exploration

In the transformative learning process, students can find out online learning suitable to their skills. Increasingly, students are exploring to find out more about newfound learning, as online learning. At this stage, students will find new things that have never been found before.

The case of online learning at the junior high school level in Batam City, 92.7% of students agreed that after online learning they were able to operate online learning media, 86.4% admitted that they had mastered the features of online learning, although some of them still needed parental help. In helping students' learning process, parents strive to provide facilities, as well as improve digital literacy to accompany their children. Online learning also helps parents to increase emotional relationship with the student also monitoring students' development, although it is not entirely possible for parents who have busy schedules or work outside the home.<sup>22</sup>

Exploration has not been done by students, but also teachers and parents. Not only can parents accompany their children, but their digital literacy will also increase. Meanwhile, teachers have a positive impact on mastering technology in learning which may have been difficult before. A number of teachers admit that the development of science and technology is much better than face-to-face learning.

#### - Planning of a course of action

In the transformation stage, students build trust, confidence and understanding about the online learning. Thus, they will tend to plan the future steps by including their acceptance of the online learning. If it turns out to be difficult to adapt, students will prefer to stick with the previous learning method.

The survey results show that 25% of junior high school students say they don't really mind the trend both online and face-to-face. Meanwhile, 34.5% are more likely to choose face-to-face learning than online, with the main reason is concerns over the Covid-19 pandemic. If the covid-19 pandemic is no longer exist, the students will prefer face-to-face learning rather than online.

Similar results were also shown from parent and teacher interviews. 95% of parents tend to choose face-to-face learning compared to online because of the effectiveness, students

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<sup>22</sup> Susanti, L., Maula, L. H., & Pridana, R. E. (2020). Peran Orang Tua Terhadap Pembelajaran Dalam Jaringan (daring) Pada Masa Pandemi Covid-19. *Jurnal Persada: Jurnal Pendidikan Guru Sekolah Dasar*, 3(3).

understanding, interaction between teachers and students which not hampered, children's psychomotor development is better, students' enthusiasm for learning is increased, learning focus and absorption of knowledge is no longer hampered. Although the teachers said that there was a positive impact from online learning, but they were more concerned with understanding students in the absorption of knowledge and the effectiveness of learning as our country's goal is to educate the nation's life. Research on the study of online learning in junior high schools found that there are still a number of solutions needed for teachers and students as actors in teaching and learning activities so that later they can do online learning without problems.<sup>23</sup>

- Acquisition of knowledge

Once students understand about the transformative of face-to-face learning into online learning, they begin to plan actions and find out more about the knowledge and capabilities of the new learning method. This stage will be carried out if students feel they need the ability and knowledge to be used in the future. In the case of online learning during the Covid-19 pandemic, can be interpreted that student are starting to have more interest in knowing and practicing online learning methods even though they are outside the pandemic.

50% of students admitted that they had an interest in learning more about online learning, as well as teachers and parents who were curious to learn more about online learning. This is due to the technology mastery factor which became much better after the online learning process.

- Provisional trying of roles

While the transformative learning phase, students want to move forward and try to understand all the changes that are taking place in online learning. Various knowledge that has been obtained, will try to be applied to their life. In terms of online learning in the covid-19 pandemic, students will show how skilled they are in using online learning media. As many as 75% of students admit that they already have the ability to operate online learning media independently and have understood online learning procedures and 6% admit they have not been able to, the rest are still unsure or sometimes they are not. From these results, it can be said that junior high school students in Batam City on average have the ability to use adequate technology.

Interviews with parents also showed that the students were now able to use online learning media and some of them had above average digital usage skills. The same thing is also experienced by teachers who now have the ability to operate online learning media much better.

- Building of competence self confidence

At this stage students build confidence and use the newly learning method. Although the majority of students admitted that they had adequate technology use skills, only 58% felt confident in continuing to use it. Likewise, teachers who already have adequate skills in operating learning media, but only some teachers feel confident to use them. Some of them still feel that communication, networking and learning effectiveness problems are still hampered.

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<sup>23</sup> Gisella, I., & Thesalonika. (2021). Kajian Pembelajaran Online Berbasis Zoom di Sekolah Menengah Pertama Pada Masa Pandemi Covid-19. Seminar Nasional Pendidikan Program Pascasarjana Universitas PGRI Palembang. Palembang: Universitas PGRI Palembang.

## - A reintegration

The phase allows students for their successful integration into life based on a new perspective (transformative face-to-face learning to online learning). Students are fully prepared if they continue to do online learning in the future even though the pandemic has ended. Reintegration is a sign that the learning method has undergone a transformation to a newer direction.

With all the capabilities they have, as many as 40% student admit that they do not agree if online learning is still carried out in the future. Meanwhile, 30% admitted that they were still unsure about their choice and 34% agreed to use online learning media completely. The parents also all chose to use the old method of face-to-face as well as most of the teachers. This refers to the readiness that is still needed if online learning is to be used for a long period of time.

## **Transformative Learning Theory Analysis**

The process of transformative learning from face-to-face to be online learning using online media has been passed through various phases but not succeeded yet in achieving reintegration. In the early stages, or a disorienting dilemma, it was proven that teachers, student, and parents experienced shock at the beginning when the online learning policy was implemented. The second phase is self-examination, student, teacher, and parents understand that during a pandemic, learning is needed in accordance with pandemic conditions, namely online learning that does not harm many parties. The third phase or critical assessment shows that students, teacher, and parents understand that online learning is a solution during a pandemic which very dangerous. The fourth or recognition phase shows that online learning is a Ministerial policy which all educational institutions must comply with. The fifth stage is exploration where students, teachers and parents show their efforts to find out more about online learning such as using learning media, using browsers, and others.

The sixth stage showed the results that students, teachers and parents chose not to prepare further plans regarding online learning. However, the next stage process, namely the acquisition of knowledge, has been successfully passed by teachers, students, and parents which can be seen in the digital mastery ability which has increased to be much better and 50% of students showed interest in exploring online learning. The next phase can be carried out well by students, teachers, and parents because of the habit that gives 75% of students the ability to be independent in operating online learning media and have understood online learning procedures. Even though they have been able to use online learning media, parents, teachers, and students still lack the confidence to apply new learning. The last stage clearly shows that there is no reintegration for now.

## **Conclusion**

Based on the results of the research above, it can be concluded that:

- The learning process in junior high school of Batam City shows a transformation. It is evidenced by the results of multiple linear regression tests which show a significant impact from students' understanding, mastery of technology, student's interest, and level of confidence towards e-learning learning.
- In the sixth stage, namely planning of a course of action, it is clear that students, parents, and teachers choose not to plan further online learning actions. These results indicate that there is a tendency to persist with the old method. The new learning method can be applied properly.

- Based on transformative learning theory analysis, it can be seen that junior high school in Batam City has not yet entered the reintegration stage but is stuck on planning of action. Both parents, teachers and students chose not to plan further about new learning methods during this pandemic. so that the reintegration process is hampered.

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***Disability-Specific Measures and Roles of Disabled People's Organizations in Supporting Persons with Disabilities and Families during COVID-19 Pandemic***

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**Abstract**

This qualitative study aimed to analyze disability-specific measures and the roles of Disabled People's Organizations (DPOs) in supporting persons with disabilities and families. The subjects selected by means of purposive technique which consisted of 42 members of 7 DPOs and were divided into 3 groups of 14. The data were collected by focus group discussion to reach saturation. The data were analyzed by means of content analysis. Finding revealed that supporting measures provided for people in general could not meet the needs of persons with disabilities. For example, the Community Isolation (CI) center is not accessible for persons with disabilities. Moreover, persons with certain types of disabilities need to stay with family members or caregivers but their families or caregivers are not allowed to stay at CI centers if they not infected by COVID-19. To solve this problem, DPOs that represent persons with each type of disabilities, with cooperation of the hospitals and their network organizations, set up CI centers to support their own members. The services at CI centers included free accommodation, foods, and medical care. With the advocacy of DPOs, the government launched disability-specific measures. Then DPOs monitor and evaluate the measures to ensure that they can meet the needs of persons with disabilities and families. They also give suggestions to the government concerning the revision and implementation of disability-specific measures and policies related to COVID-19.

Keywords: COVID-19, Persons with Disabilities, Disabled People's Organizations, Measures, Policies

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## Introduction

The World Health Organization (2020) declared that Coronavirus Disease 2019 (COVID-19) was a pandemic. Up till now, the Pandemic has spread all over the world, affecting lives of millions of people including vulnerable groups such as children, persons with disabilities, the elderly and those living under poverty line. Persons with disabilities are facing more challenges in dealing with the situation due to their limitations. For example, persons with mobility disabilities cannot avoid touching the seat when they try to sit. Wheelchair users cannot wash their hands because they cannot get close to the sinks, or the sinks are too high. For persons with visual disabilities, it is difficult for them to avoid touching handrails when they walk up or downstairs. When they are guided by sighted people, they have to hold on to the guide's elbow, making it difficult to avoid physical contact (WHO, 2020). Persons with disabilities living in rural areas even face more challenges as they already have limited access to health care services. They, therefore, have more difficulties to access preventive care and treatment during COVID-19 Pandemic. Some of them are not vaccinated because they cannot go to health care units that provide vaccination. Moreover, some support systems are not accessible for persons with disabilities. For example, the Community Isolation (CI) supports those who are infected by COVID-19. CI Centers provide free meals, medication and accommodation for COVID-19 infected persons. However, these places are not accessible for persons with disabilities. In later stages of the Pandemic, the government provided one CI Center for persons with disabilities who are infected by the Pandemic at Sirindhorn Science Home. But it is obviously insufficient for more than 2 million persons with disabilities in the country. Besides, persons with different types of disabilities need different kinds of support. These factors cause more challenges to persons with disabilities and their families than those without disabilities. As Thai citizens, persons with disabilities and their families are eligible for the measures provided by the government in response to COVID-19. The example of the measures such as reduction of required contributions to the Social Security Fund (SSF) for employers and employees, reduction of electricity and water bills, income compensation of 5,000 baht per month for three months for workers not covered by SSF, emergency loan of 10,000 baht per person at 0.1% monthly interest, Lowering the interest rate of state-owned pawnshops of 0.125% a month for two years.

Nevertheless, not all of these measures can meet the needs of persons with disabilities as they need more comprehensive measures that can respond to the needs of persons with all types of disabilities. Therefore, the disabled people's organizations (DPOs) play an important role in the advocacy for persons with disabilities. The Disability Thailand is an umbrella organization which consists of 7 representative organizations of persons with 7 types of disabilities i.e., mobility, visual, hearing, learning, psychosocial, intellectual disability, and autism. It represents persons with all types of disabilities. So it initiated specific relief measures for persons with each type of disabilities. It organized meetings with the associations of persons with all types of disabilities to collect the challenges that persons with disabilities and families face due to COVID-19. Then it had dialogue with the authority in charge, Department of the Empowerment of Persons with Disabilities, concerning the needs of persons with disabilities and families. It also submitted an official letter suggesting the measures to be provided by the government to relieve the challenges that persons with disabilities face during the Pandemic.

## Objectives of the Study and Methodology

This qualitative study aimed to analyze disability-specific measures and the roles of DPOs in supporting persons with disabilities and families. The subjects consisted of 42 members of 7

DPOs which were representatives of persons with 7 types of disabilities as categorized by the Empowerment of Persons with Disabilities Act. They are either persons with disabilities or parents/caregivers (in case of persons with intellectual disabilities and autism). The data were collected by Focus Group Discussion with 42 members which were divided into 3 groups of 14. The data were analyzed by means of content analysis.

### **Result of the Study**

The study revealed that even though Thai persons with disabilities are eligible for the relief measures provided by the government, these measures do not always meet their needs. Official and unofficial complaints are submitted through DPOs which are their representative organizations. Some DPOs such as the Association of Persons with Physical Disabilities in Thailand has local offices at the provincial and district levels where members are taken care of by the representatives who are also persons with disabilities selected by the members in that province or district. Some persons with disabilities do not know what services are available for them and their families during COVID-19. So the disability representatives at local branches provide information for their members and inform them about their rights and then report to the Executive Committee that acts as an advocate for its members. All 7 representative organizations of persons with disabilities, together with Disability Thailand, collected all complaints and suggestions from their members and submitted an official letter to the Department of the Empowerment of Persons with Disabilities, which is the authority in charge. The content of the Letter is as follows:

1. The government must ensure that persons with disabilities and families or caregivers get vaccinated.
2. To guarantee that the emergency loan of 10,000 baht can reach all persons with disabilities in need. In order to do so, unnecessary step(s) should be waived. For example, the home visits should be cancelled because during the Pandemic, travelling is limited or even prohibited in some areas.
3. The disability allowance from 800 to 1,000 baht must be available for all persons with disabilities regardless of ages or other conditions. All complicated unnecessary regulations must be revised.
4. The “Half-Half” Project should be accessible to persons with disabilities as well. In order to ensure that 2 million of persons with disabilities can access the Project, there should be special Application for them so that they do not have to struggle because registering for the “Half-Half” Project is complicated and time-consuming. Besides, it is troublesome for those who do not have strong internet signal. Having separate Application for them can reduce this issue.
5. For “Rao Chana” (We win) Project, the emergency allowance of 7,000 is to be given to those who are eligible according to the regulations. However, there are still many persons with disabilities who do not get the allowance even though they are qualified because they cannot access the Application on smartphones. So there must be an option for them to get the allowance in cash.
6. The government should work closely with DPOs. It should set up committee/working groups which consists of members from DPOs, Civil Society Organizations (CSOs), and stakeholders to launch and implement relief measures.
7. Promote employment of persons with disabilities in the government sectors. The employment quota for government bodies should be 50:1, not 100:1 as it currently is.
8. There should be programs to upskill and reskill to prepare persons with disabilities for new jobs according to the “New Normal” way of life.

9. The government should work with the local authorities and Disability Service Centers to ensure that all persons with disabilities in need can receive the emergency grant of 2,000 baht allocated from the Fund for Empowerment of Persons with Disabilities.

Aside from the existing relief measures, the additional measures proposed by Disability Thailand have been launched but some are still pending. During the Focus Group Discussions (FGD), representatives from DPOs gave comments and suggestions to the disability-specific measures that have been launched by the government as follows:

**1. An emergency grant of 1,000 baht.** Members of FGD mentioned that the amount of the grant is too small compared with the 5,000-baht grant provided for people in general. Although some may say persons with disabilities are also entitled for this 5,000-baht grant, in reality not so many of them can access this grant. That is why DPOs recommend that there be another channel for them to receive an emergency grant. However, the 1,000-baht grant is not allocated from the government budget. It is from the Fund for Empowerment of Persons with Disabilities which is derived from employers that do not hire persons with disabilities according to Article 33 and 34 of Persons with Disabilities Empowerment Act which states that: Article 33 Employers, entrepreneurs and government agencies shall employ persons with disabilities to work in the positions suitable for them in proper proportions to the entire number of the employees in their work places in the ratio of 100:1. Article 34 Employers or entrepreneurs who do not employ persons with disabilities at the proper proportions as mentioned in Article 33 shall send money to the Fund for Empowerment of Persons with Disabilities. The Fund is administered by the Department of Empowerment of Persons with Disabilities, with the objective to support persons with disabilities who are self-employed as interest-free loans and to support programs and activities for employment promotion such as vocational training programs. However, the DPOs decided to allocate part of this Fund for the emergency grant because, if they wait for the government budget, it cannot promptly respond to the needs of persons with disabilities as it takes time for bureaucratic process. Due to the expense for the emergency grant, the amount of the Fund is getting smaller, resulting in less budget for vocational and employment promotion programs for persons with disabilities. So they suggested that the government allocate enough budget as an emergency grant for all persons with disabilities in a timely manner.

**2. Postponement of Disability Loan payback.** Individuals with disabilities can make loan for self-employment in the maximum amount of 60,000 baht without interest and have to pay back within 5 years. For those who want to make loans with higher amount, it will be considered case by case. However, the loan shall not exceed 120,000 baht. As for group loan, the maximum amount is 1,000,000 baht. The government authority in charge, with consideration of the difficulties that persons with disabilities face during COVID-19, offers that they do not have to pay back the loan for 12 months. But according to the opinions of persons with disabilities and families/caregivers, the postponement does not help because the time of installments is not extended. Even though they do not have to pay back the loan for 12 months, they have to pay back the remaining amount within the remaining years, which results in higher installments in later years. This can be more difficult for them in the future. What they recommended was that, aside from the 12 month-postponement, the maximum payback time should be extended from 5 years to 6 years.

**3. Emergency loan of 10,000 baht.** Aside from loan for self-employment, persons with disabilities or family members/caregivers can make an interest-free loan at the maximum amount of 10,000 baht. They can pay back within 5 years and can start paying back from the

second year. The difference between this emergency loan and regular self-employment loan is that the emergency loan does not require guarantor and also requires no home visit for those who already make loan for self-employment. Persons with disabilities said that the “no guarantor” policy is helpful for them because finding a guarantor is always a challenge. But they think the home visits should also be waived because during the Pandemic, the travel is restricted. So home visits have to be postponed. This can delay the approval of the loan and persons with disabilities may have to wait. So there should be no home visits to shorten the process and make it more accessible to those in need.

**4. Increase of disability allowance from 800 baht to 1,000 baht.** In Thailand, persons with disabilities who carry disability I.D. cards are eligible for monthly disability allowance in the amount of 800 baht. However, the disability allowance is not automatically given to all that carry disability I.D. cards. They have to submit the request and go through a process in order to get it. So there are some persons with disabilities who do not receive this allowance because they did not submit the request. DPOs have been encouraging the government to increase the amount of the disability allowance but the proposal has been postponed for years. When the Pandemic occurred, DPOs think it is a good opportunity to propose to the government again. Finally, the government agreed to increase the disability allowance from 800 baht to 1,000 baht per month. However, the increased amount is not given to all persons with disabilities. The government made complicated rules of eligibility. Only those under 18 who carry disability I.D. cards shall receive the increased amount automatically. For those who are over 18, they need to have the following qualifications: having disability I.D. cards; currently receiving disability allowance; and having social welfare cards. This is difficult for many persons with disabilities because in order to get social welfare cards, they need to apply through the government Application which is available on mobile phones or computers only. In reality, not all persons with disabilities have mobile phones or computers. Even though they do, some find it difficult because they are not good at technology especially those with old ages. So DPOs still work with the Department of Empowerment of Persons with Disabilities to make the increased amount of disability allowance available for all persons with disabilities. “We just half succeeded. We can fight for our friends to get more allowances but it is still not available for all. Not all of us can get it” An FGD member from the Association of Persons with Disabilities in Thailand said.

**5. Vaccine Quota for persons with disabilities.** At the early stage of COVID-19 Pandemic, vaccines were scarce. So the majority of persons with disabilities were not vaccinated. Realizing that persons with disabilities, due to their health conditions, are more vulnerable to get infected and might be seriously sick if they get infected, DPOs consulted with the government through the Department of Empowerment of Persons with Disabilities, Ministry of Public Health and other related Ministries and finally the government allocated vaccines especially for persons with disabilities and families or caregivers on the condition that one person with disabilities can get one dose for him/herself and another one for a family member or caregiver. In addition to persons with disabilities and families or caregivers, the quota was also given to those who work with persons with disabilities including government officials. Some people in the FGD mentioned that too many people from the government received the vaccines from this special quota. “Too many government officials got the shots. They should give priority to persons with disabilities and families. They (the government officials) have more opportunities to get vaccines than us”, said a representative from the Association of Persons with Disabilities in Thailand. There was the 2<sup>nd</sup> phase of vaccine quota for persons with disabilities. In this phase, families and caregivers were not eligible. “This doesn’t make sense. I have to take care of my son who have intellectual disability. If I’m

infected, then he will be infected too, of course.” A mother who has a son with intellectual disability said. However, the problem of vaccine availability is getting less serious as there are many more doses coming. Now it is much easier to get COVID-19 vaccines.

**6. Community Isolation (CI) centers for persons with disabilities.** At the early stage of the Pandemic, there were no CI centers for persons with disabilities, making it very difficult for those who were infected. DPOs then took an initiative role to have CI centers for persons with disabilities. The government agreed with this proposal and set up a CI center for persons with disabilities. However, one center was not enough. Besides, this center also accepted persons without disabilities who were infected, making it crowded and inconvenient for persons with disabilities. The facilities of the center are limited to persons with mobility disabilities only. There were no Braille and other facilities for persons with visual disabilities and no sign language interpreters for persons with hearing disabilities. “After getting infected by COVID-19, I was sent to that center which was located in the university complex. There were no facilities for blind people and the staff did not understand how to support us. I was told to do private things like urinating on bed (in the bowls) even though I could walk. I told them I could go to toilet by myself. What I needed was just somebody to guide me to the toilet. But they didn’t listen to me. They insisted that I had to do everything in bed because I was sick.” A woman with visual disability shared her experience during the discussion. Moreover, family members and caregivers were not allowed to stay at the center if they were not infected. “It’s impossible for children with autism or intellectual disabilities to stay away from parents. How can they stay in the center alone?” A parent who has a child with autism said. It is also impossible for persons with severe disabilities who need 24-hour care to stay alone at the center. “I need 24-hour care. I can’t live without my PA (personal assistant). Can they provide me a PA for 24 hours? Even though they can, I’d prefer my PA because she knows how to support me. I don’t have to tell her what to do step by step.” A man with profound mobility disability said. In order to solve this issue, DPOs decided to support their members by setting up CI centers for persons with each type of disabilities. With cooperation from their network organizations, they partner with other organizations and hospitals to set up their own CI centers. For example, the Association of Parents of Persons with Intellectual Disabilities partnered with Rajanukul Institute which is a hospital for children with intellectual disabilities to set up a CI center for persons with intellectual disabilities where they can stay with their parents or caregivers. The Association of Persons with Disabilities in Thailand partnered with a hospital and a hotel to provide a hospitel for persons with mobility disabilities who get infected. Hospitel is facility where people who get infected but not seriously sick (Green and Yellow Groups) stay. Accommodations, meals and medication are provided for free. The term “hospitel” is a combination of two words, hospital and hotel. Several hospitels have been set up in the year 2021 but none of them can facilitate persons with disabilities. That is the reason why DPOs have to set up hospitels and CI centers to support their members. They also provide transportation for persons with disabilities to go to the hospitals, hospitels and CI centers.



Figure 1: Community Isolation Center for Persons with Mobility Disabilities



Figure 2: Community Isolation center for persons with intellectual disabilities

7. **Other suggestions.** From the focus group discussion, members of 3 groups gave suggestions which include:

7.1 The government should respond to the Pandemic in a timely manner. It should reduce the bureaucratic process and adjust to the changes. Some rules and regulations should be revised to keep up with the situation.

7.2 When making decisions concerning persons with disabilities, the government must listen to the voices of persons with disabilities and their representative organizations. They should work closely to ensure that the relief measures can truly support persons with disabilities and families.

7.3 The existing relief measures for general people should be reviewed to make sure that persons with disabilities and families can benefit.

7.4 All relief measures should be comprehensive so that everybody can benefit including those in vulnerable groups such as the elderly, children, women and persons with disabilities.

7.5 Disability-specific measures are as important as general measures and persons with disabilities should be able to benefit both, as a Thai citizen and as a person with disabilities.

7.6 Families of persons with disabilities should be supported during the Pandemic. Some of them lost their job due to COVID-19 and face economic crisis just like others. Job opportunities and financial support are needed.

7.7 Medical support should include mental health promotion to reduce stress.

7.8 Related Ministries should work together. Disability matters are not only under responsibility of the Ministry of Social Development and Human Security but it involves other Ministries as well.

## **Conclusion**

COVID-19 Pandemic has proved that DPOs in Thailand are strong as they play important roles in maintaining quality of life and wellbeing of persons with disabilities and families which are highly affected by COVID-19 in various ways, from health to financial issues. The study shows that many measures were initiated by them and their quick response was helpful. The government, therefore, should listen to their voices and work closely with them so that it can issue the relief measures that truly respond to the needs of persons with disabilities and families. Furthermore, comprehensive and proactive measures should be issued and effectively implemented. It should also reduce bureaucratic works in order to keep up with the fast-changing situation and render services to those in need in a timely manner.

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***Insights into Students' Online Learning Experiences During COVID-19 Pandemic:  
Shaping How We Do Education Moving Forward***

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**Abstract**

Teaching and learning have transitioned entirely into an online mode in response to COVID-19 pandemic in Mongolia. Online education in and of itself is not new to Mongolian higher education sector. However, transitioning into 100% online mode within a space of a month and continue doing so since February 2020 has been a challenge. This article presents an insight into Mongolian National University of Education students' experiences with online learning using Microsoft Teams. The findings reveal that the Microsoft Teams provided similar learning experiences to on campus face to face learning in terms of working in groups, participating in lectures and seminars, and communicating with peers and teachers for some. For others, however this same experience was not achievable given their circumstances associated with rural location, poor quality Internet connection, costs of technology, buying Internet data, and other personal and family situations. Despite the challenges, of the 87 students who were involved in the study 57% of them were satisfied with the online learning mode but 36% were not satisfied. The qualitative findings were mixed: some noticed improvements in their independent learning skills and use technology and preferred online learning, some reported preference towards a blended learning for better interaction with peers and teachers. This insight into students' experiences with online learning is valuable in shaping how we do higher education moving forward.

Keywords: COVID-19, Online Learning, Higher Education, Future Education

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## Introduction

COVID – 19 pandemic created many challenges in how we do education all around the world including Mongolia (Crawford et al. 2020; Lkhagvasuren 2021; UNESCO, 2020). In the context of Mongolia, like in many other countries, in February 2020 educational venues were closed down for certain periods of time to minimize the spread of the COVID – 19 virus and reduce infections. Mongolian National University of Education (MNUE) had to respond to this change very quickly with little time to plan for 100% online learning and teaching mode. In other words, due to this extraordinary circumstances, the university made the decision to close down first following the government advice and then discuss the ways around how we would do teaching and learning online.

Before the pandemic, MNUE used to do education largely on campus with little capacity to do online learning. On campus teaching and learning were focused on active student-centered learning, with emphasis on team work, collaboration, peer learning and support, and laboratory learning. Due to this sudden transition to 100% online teaching and learning, teachers had to change their approach to teaching and students their approach to learning.

The authors of this paper work as lecturers in the School of Humanities and Social Sciences of MNUE, English language department. The authors teach English language to future school teachers. Most of the student population of the school are from country Mongolia. Due to the lockdown, these students who were living in the capital city where their respective campus was located had to travel back to their home countries or remote villages.

This article aims to capture an insight into students' experiences with online learning and how effective the use of Office 365 Microsoft Teams was, particularly in relation to experiences associated with use of technology, learning environments, and student engagement when learning online.

## Literature Review

Online learning is a technology-mediated teaching and learning approach which has been researched extensively in the field of Educational Technology for the past decade or so. Garrison (2017) points out that this technology - mediated learning is rapidly changing how educational institutions do teaching and learning. Online learning or e-learning is defined as “an innovative web-based system based on digital technologies and other forms of educational materials whose primary goal is to provide students with a personalized, learner-centred, open, enjoyable, and interactive learning environment supporting and enhancing the learning processes” (Rodrigues et al., 2019, p. 95). This definition shows that if educational institutions are offering online learning to their students, it needs to mimic the campus delivery mode in a sense that the teaching needs to be student-centred and students need to be provided with interactive engaging materials that help them better their learning and study goals. Because it is delivered online, the digital technologies need to be enabled and provided regardless where the locations of the students are.

In their 2018 paper, Shailendra et al. stated that online education and its various modes has been growing steadily worldwide due to the high use of technologies, wide utilization of the Internet, and increasing need from workforce to suit the needs of digital economy. It was estimated that online education is going to become the main form of education by 2025 (Shailendra et al, 2018). Many universities were increasingly running their education in some

blended modes (both online and on campus), progressively shifting their focus more towards online education.

But this was in 2018. When the pandemic hit hard and fast in the early 2020, most educational institutions were not ready for the rapid transition to fully go into online learning mode. For example, the students from country Mongolia living in remote areas or from low socio-economic backgrounds do not have sufficient access to the Internet and technologies needed to study online (Lkhagvasuren 2021). These situations created enormous challenges to students and their families. This situation made students to experience inequality and discrimination (Lkhagvasuren 2021). It was also found that students may experience psychological disorders and anxieties in relation to fear of falling behind (MNUE & UNICEF, 2020).

To put this in perspective, there are 320 small villages in Mongolia which comprises 96.6% of the country. These villages have fibre optic cable connections or 3G or 4G/LTE Internet connections. About 92% of the village population use Internet, while approximately 48% of households own computers (Main Development Trends of Mongolia for 2021-2025). While the data show higher percentage of the population use the Internet, this does not mean that they have access at their finger tips. Affordability of the Internet data and computer pose significant barriers to students' education (UNDP Mongolia's Accelerator Lab Team, 2021).

To resolve this issue, there is an urgent need to supply students with fast Internet connection, computers and deliver education and content that is suited to online learning (Lkhagvasuren, 2020). This is dependant on Information and Communication Technology infrastructure, human resources, and program renovations which means that Mongolian government and higher education institutions have a lot to do (Lkhagvasuren, 2020).

According to the *Vision 2050 Long Term Development Policy*, "The Government aims to create and develop equal opportunities for the quality and inclusive education for everyone" (Main Development Trends of Mongolia for 2021-2025). To achieve these goals, legal arrangements have already been made for digital and distance learning for the first time in Mongolia (Lkhagvasuren, 2021). For example, higher education institutions have been using management information systems and other software to deliver online education during the pandemic. However, more work needs to be done to continuous training processes, and ensure every student has the opportunity for the quality and inclusive education (Lkhagvasuren, 2021).

### **Theoretical framework**

The theoretical framework that was used to inform the development of this research and understand students' experiences with online e-learning is Community of Inquiry. Community of Inquiry is one of the widely used theoretical framework in the studies about online learning or e-learning is Community of Inquiry (Garrison, Anderson, Archer, 2010). This theory is about the people who constitute the community, for example teachers and students who aim to develop knowledge and ideas, build meanings, and do research (Garrison et al., 2010).

Personal reflection and shared discussion are common amongst these communities and the success of this processes is dependant on how teachers engage students in learning environments that are interesting and engaging (Thomas, Wes & Borup, 2017). In other

words, what knowledge a student develops is dependant on the learning environment or the community of inquiry. Students need to be provided with learning environments that help them to take responsibility for their own learning, enable them to negotiate meanings, and question their current understandings about ideas and develop new ones (Thomas et al., 2017). Three key components of his theory were particularly relevant to the context of this study:

- a. Students working in groups and feel sense of belonging as this helps them to communicate openly with trust (Thomas et al., 2017; Shea & Bidjerano. 2009; Shea & Bidjerano, 2012).
- b. Teacher facilitation in helping students think cognitively, make meaning and keep interested in learning (Arbaugh, 2013; Rubin, Fernandes, & Avgerinou, 2013).
- c. Focus on reflection, discussion, and critical thinking to help students make meaning and confirm meanings (Ke , 2010; Kim, Kwon,& Cho, 2011; Zhan & Mei, 2013; ).

This shows that for teaching and learning to be successful in the context of Community of Inquiry, learning environments need to be set up to enable students to work in groups in which they feel comfortable to discuss ideas openly without feeling fear or shame, students need to be provided with content that is well designed to meet their learning needs, and teachers need to be capable in facilitating the content so that it is helping students to make meaning through cognitively challenging activities. These three key concepts of Community of Inquiry have been tested successfully in different educational contexts of e-learning (Stenbom, 2018; Yu, & Richardson, 2015).

### **Participants, Research Method and Data Analysis**

A total of 87 students ranging from 18-22 years of age participated in the study. The students were studying in their first year of primary education at the MNUE. 3% of the students were male and 97% were female students. 71 students experienced online learning for the first time at the time of participating in the study and only 16 students had prior experience with the online learning which was outside their university learning. Most of the students were from country Mongolia.

Data were collected using online survey method called Google Forms. This was used to collect data about students' approach to online learning, challenges associated with online learning, learning environments and their perceived engagement. Online survey is a convenient way to collect data from a large cohort answering the same questions (de Vaus, 1995) and it is one of the widely-used survey methods (Walter, 2010). It is convenient in a sense that different types of data on different topics can be collected electronically from different respondents (Jansen, Corley & Jansen, 2007) in a short time and at little or no cost (Czaja & Blair, 2005).

The online survey was hosted on Google Forms. The online survey link was sent to the students to collect the data. Students completed the surveys voluntarily and the respondents were anonymous which meant non-identifiable.

Data analysis aimed to find meanings in data (Patton, 2012) or in the context of this study to understand how the online learning impacted on students' learning and engagement. Google Forms is a user-friendly tool that automatically analyses data itself and provides a meaningful data that are easy to interpret.

## Findings

The findings from the study are arranged in three categories: use of technology, learning environment, and student engagement.

**Use of technology:** 1% of the students owned desktop, 9% owned laptops and 90% of the students reported using their mobile devices to participate in online learning. It was reported that 32% of the devices worked well, 49% reasonably well, and 18% did not work well or the students frequently experienced technical issues.

Of the 87 students, 10% of them reported that they managed to continue with their studies regardless of disturbances outside of their control. However, overwhelming 90% of the students reported constant difficulties including issues with the Internet connection, software being down, power outage, difficulties with concentration due to daily distractions in the household, the size of their mobile devices did not allow to see some pages of the content materials, and costs associated with purchasing Internet data was high.

Regardless, 69% of the students were happy using the Office 365 Teams recommended by the University. The platform enabled students to communicate with others, work in groups face to face, watch recordings of the lectures, use resources which were readily available on the platform, and they were easy to use. On the other hand, 9% of the students did not experience similar engagement with the Teams due to their slow Internet or lack of it, having no access to microphones and cameras, high costs to purchase Internet data, and their mobile devices did not support some of the applications used in Teams. Only 1% of the students found the online learning mode was ineffective and they preferred on campus face to face learning.

**Learning environments:** Of the 87 students 29% were from the capital city, 6% resided in the centre of provinces, and 40% of the students lived in village centres, 22% were from remote villages, and 3% had to go to the top of mountains so that they can connect to the Internet to study. 7% of the students described their learning environments satisfactory, 74% manageable, and 20% unsatisfactory.

Face to face interactions in the online learning space was reported as very important by 36% of the students. Whereas 63% reported as important and 3% viewed it as not as important. It was also found that 81% of the students communicated with their peers via Facebook, Teams chat function, and exchanged messages via their mobile phones for the purposes of sharing subject information and study tips. The students also reported that they were communicating with their teachers using the same mediums in addition to emails.

Students also rated the class contents designed by the teachers. 2% of the students found the content excellent, 45% thought that it was of good quality and 47% average and 6% said it was of poor quality. 36% of the students found that the help they received from their teachers were timely and useful but 55% reported that it could be improved. Majority of the students or 76% found the online learning enabled medium level productivity and 57% enjoyed learning online.

**Student engagement:** During the period of online learning, students studied 8-9 different subjects or 13-14 credit hours. On average, they were spending anywhere between 5-10 hours daily on their studies. Some of the side effective of studying online were dry eye, and neck

and back pain. On a positive note, a large number of students reported that they saw significant improvements in their independent learning skills, time-management, technical skills and troubleshooting, and online communication skills.

Last but not least, 41% of the students preferred on campus learning mode as they reported that the on campus face to face learning helps them to better engage with learning, connect with teachers, more productive, learn better and develop deep understanding under teachers' supervision, and engage with peers. Another 49% of the students found no significant difference in terms of engagement and learning quality though with some differences: online learning promotes more independent learning skills and time-management whereas on campus learning promotes better engagement with teachers and peers. Therefore, these students preferred both the online and on campus learning modes moving forward.

## **Discussion and Conclusion**

The findings show the student satisfaction with online learning drastically varied around use of technology, learning environment, and student engagement. Though there were noticeable advantages to online learning including improvement in independent learning skills, time-management skills, better engagement with peers and sometimes teachers, the bigger picture of the findings reveal that one aspect of online learning cannot be successfully achieved without the other.

For example, without having access to affordable Internet and technology, it is virtually impossible to deliver good quality education and engage productively in learning. This is the ultimate bridge between the teaching and learning in an online space. Mongolian higher education sector and MNUE have to make significant improvement in this space. As was mentioned earlier, it is promising to know that to develop equal opportunities for the quality and inclusive education for everyone, the Mongolian government has made legal arrangements for digital and distance learning (Lkhagvasuren, 2021). However, more needs to be done in relation to implementation of these amendments. As was suggested by Palvia et al (2018), telecommunications infrastructure with focus on high speed Internet has to improve.

To achieve success of true community of inquiry, it is important how teachers engage students in online learning environments so that the learning is interesting and engaging (Thomas, Wes & Borup, 2017). Data show that more work need to be done in this space too. This is in line with what was suggested by Palvia et al. (2018) in that online education quality also has to improve to the level of how on campus face to face learning is conducted with better engagement both between teachers and students, and peers with each other. This indicates teacher training or professional development for teachers on the topic of online learning and community of inquiry is essential.

Overwhelming number of students reported issues around having access to affordable Internet and technologies. This shows that MNUE has to assist students from country Mongolia or low socio-economic backgrounds to have access to technologies. Many universities cooperate with technological companies to provide computers and equipment to create campus working and learning environments. They need to extend their cooperation to more online learning context and design a program to better assist and supply students in need with computers and necessary equipment for learning from remote locations.

Such insights into students' experiences with online learning is valuable in shaping how we do higher education moving forward. More likely, like the rest of the world, Mongolia will be doing more of online learning than on campus learning. Mongolia and Mongolian higher education need to have a thorough strategic planning in place to create better online learning experience for students and for teachers.

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## *The Practice of Teaching Java Programming Language to Undergraduate Students*

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### **Abstract**

The paper presents our practice of teaching java programming language to undergraduate students at Tsinghua University, China. The biggest challenge is the design of the course to improve students' programming ability. The course consists of two parts: the class lectures and the after-class exercises, both are designed deliberately. The purpose of the lectures is to help the students understand the kernel ideas of the object-oriented programming (OOP) and learn the common used java classes. OOP is difficult for many students, therefore we used different methods to make the process smoother. For example, Tony Stark and his armor in the movie "Iron Man" are presented when interpreting the storage of the superclass object and the subclass object. The java class library is an important component of the language which contains exceptions, input and output streams, files, graphics user interface, threads, network programming, etc. The most important part of the after-class exercises is a programming project. Learning by doing is probably the best way to get familiar with a new language. The students are required to write a complete program (generally a computer game) using java individually. In such a project, all the technologies learnt in classroom are used and combined together. The games written include Tetris, Snake, Battle City, etc. This course has been taught for 6 years at Tsinghua and about 740 students were enrolled totally. These students were from different majors. The examination results and the programs they wrote indicate that they achieved major improvements after the course.

Keywords: Java Programming, Course Design, Ability Development

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## Introduction

Java is one of the world's most popular programming language, it is widely used in software industry. For example, Elasticsearch is a real-time distributed search and analytics engine. It allows you to explore your data at a speed and at a scale never before possible. Many famous websites such as Wikipedia, StackOverflow, Github, Facebook, Quora, LinkedIn, Netflix are using Elasticsearch to search all kinds of documents, and this powerful search engine is developed in Java.

We provide a Java programming course for undergraduate students at Tsinghua University, China. It is an optional course for anyone interested in studying Java programming. The students are required to have basic prior programming experience before taking this course. For example, they know how to write a procedure to solve a practical problem in the C language. The course is given in one semester of sixteen weeks, and in each week, there is one three-hour lecture and one three-hour lab session. Generally there are more than 70 students in the class, they are from different majors such as materials science and engineering, chemical engineering, hydraulic engineering, mechanical engineering, automotive engineering and building science & technology. The textbook used is Introduction to Java Programming, which was written specifically for this course by the author of this paper.

The course consists of two parts: the class lectures and the after-class exercises, both of which are important in learning Java language. The class lectures tell the students the basic ideas of the object-oriented programming and help them to learn the common used Java classes. The after-class exercises give students the opportunity to practice the theory and skills learned in the classroom. Learning by doing is particular important when you try to study a new programming language.

The author of the paper (Shi, 2012) have taught the course for several years and find that it is not an easy job. Firstly, the students are from different majors and they have few (if not zero) professional training before taking the course. For example, the code they write may be correct functionally, however they are in bad programming styles and can hardly be understood by other programmers. This situation can lead to serious problems when many programmers cooperate with each others to complete a software project.

Secondly, the course is an optional one for the students and they may not spend as much time on it as their major courses. A programming course is always tough enough because it has a lot of homework. The students need to write source code on computer and any small mistakes will make the program fail to run correctly. Therefore, it will take a student lots of time to complete the course. However, many students have their major courses which are also tough enough at the same semester and it is obvious that these courses will have priority when time is limited.

Thirdly, the students enrolled in this course may have learnt how to write programs in structural programming languages (such as the C language), but few of them have any idea of the concept of the object-oriented programming. They are often confused by the difficult OOP concepts such as Abstract, Encapsulation, Inheritance and Polymorphism. A common situation is that a student can write a function to solve a particular problem, but he doesn't know how and why to combine several functions with a couple of variables to make a class.

Therefore, it is a great challenge for us to provide better service to the students when teaching this course, we need to design the course carefully and elaborately.

### **Class lectures**

The purpose of the class lectures is to help the students understand the kernel ideas of the object-oriented programming and learn the common used java classes.

Topics covered in the course include:

- Introduction: history of Java language, the Java platform, structure of a Java program, Java IDE (Integrated Development Environment)
- Java language basics: variables, constants, data types, expressions and operators, the if statement, the switch statement, the for loop statement, the while loop, the do-while loop, the break and continue statements, one-dimensional arrays, two-dimensional arrays
- Java OOP: classes and objects (defining classes, using classes, methods, references, static types), access control (public, protected, default, private), method overload, storage management, inheritance (parent and subclass), polymorphism (override, method binding, abstract classes, interfaces)
- Exceptions: what is an exception, why use an exception, try-catch structure, throws
- Input and output: byte streams, char streams, buffers, files
- Graphic User Interface (GUI): the Graphics class, the Color class, the Font class, Swing components (containers, basic controls, layout manager, event handling)
- Thread: process and thread, Java thread, data sharing between threads, thread mutex and synchronization, thread scheduling and priority
- Network programming: principles of computer networks, URL(Uniform Resource Locator), TCP(Transmission Control Protocol) programming, UDP(User Datagram Protocol) programming
- Object collections: collections, List interface (ArrayList, LinkedList), generic types, Set interface (HashSet, TreeSet), Map interface (HashMap, TreeMap)
- Android programming: mobile application development, the Android operating system, the Android IDE, develop an Android application
- Writing solid code: coding conventions (naming, comments, error handling, style and layout), program debugging, test cases development

These topics can be divided into three parts. The first part discusses the Java language basics, i.e. how to write a computer program in Java language. As we know, when James Gosling and his colleagues invented the Java language 30 years ago, they thoroughly studied and compared the C/C++ language, therefore, this part of the Java language is quite similar to that of C/C++.

The second part is Java OOP, which is the core foundation of the course. Every Java application is a combination and interaction of different kinds of classes. Furthermore, every programmer need to use the libraries implemented by the language system when developing a practical software project and the libraries provided by Java are also in the form of classes. However, students often have difficulty in learning the OOP part of the Java because it is abstract and hard to understand. Therefore, we have to try our best to teach the students using all kinds of valid methods.

The third part is commonly used Java class libraries. To become an experienced Java programmer, it is very important to get familiar with these libraries. We don't have to build a software system from scratch, we can build it on top of the existing components.

### The methods

To make students understand the contents of the class lectures easier, various of methods are used.

The first method is to propose analogues in life for those abstract concepts in theory. When students see those difficult concepts, they may feel that it is hard to understand. But when they see these visual examples, they know what it means immediately.

For example, in class we will introduce the memory storage of objects. Given a superclass and a subclass, if we construct a subclass object, on the one hand this object is an independent and complete object, on the other hand there is also a superclass subobject hidden inside it. When the students read this paragraph, generally they will get totally confused. Then we will show them the Figure 1.

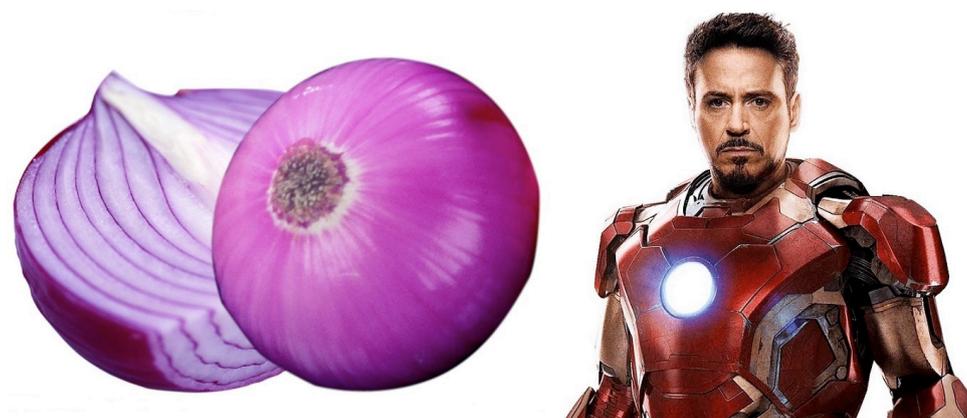


Figure 1: Onion and Iron man.

In the Figure 1, we can see an onion. Onion is a vegetable that is composed of several layers. If you skin the outside layer of an onion, the remaining part is still a complete onion that has the same shape. Another example is the ironman from the film "Iron Man". Ironman is a superman that can fly and fight, actually he is a man named Tony Stark who is wearing a suit of armor.

```
class Man {
    String name;
}
class IronMan extends Man {
    String nickname;
    void print() {
        System.out.println("Man: " + name);
        System.out.println("Ironman: " + nickname);
    }
}
```

Figure 2: the Man and IronMan class.

In figure 2, we defined a Java superclass named Man and a derived subclass named IronMan. Now if we create an IronMan object, then there is also a Man object existing in it. Just like there is always a man (Tony Stark) existing in the ironman.

The second method is being humorous in class. In a certain sense, studying is hard and boring. If a student has listened to the lectures for a long time, he or she will fail to concentrate more on the work. Therefore, it will be helpful if we can attract the students’ attention by saying something funny now and then. For example, logical operators are used to combine two boolean operands together and there are three logical operators: && (AND), || (OR) and ^ (XOR). Figure 3 demonstrates the truth tables of these operators.

a && b			a    b			a ^ b		
a \ b	true	false	a \ b	true	false	a \ b	true	false
true	true	false	true	true	true	true	false	true
false	false	false	false	true	false	false	true	false

Figure 3: Truth tables of three logical operators.

It is obviously that these tables are boring and hard to remember, so we can show them in another way. Figure 4 is a picture we found on the Internet, it is named as “boolean hair logic”, which means the result hair of A and B’s logical operators. For example, B has a moustache while A hasn’t, therefore, A && B doesn’t have one.

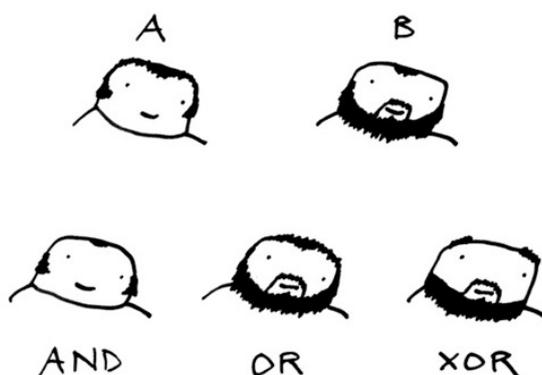


Figure 4: Boolean hair logic.

### The exercises

As we know, learning by doing is probably the best way to get familiar with a new programming language. The after-class exercises of this course include two parts: weekly assignments and a programming project.

In each week, we will have a three-hour lecture that covers one of the course topics. After that, the students are required to finish weekly assignments which are generally two or three programming problems. The purpose of these assignments is to help the students review what they have learned in class.

The most important part of the after-class exercises is a programming project. The students are required to write a complete program (generally a computer game) using Java individually. In such a project, all the technologies learnt in classroom (classes, exceptions, GUI, multi-threading, network programming, etc.) are used and combined together.

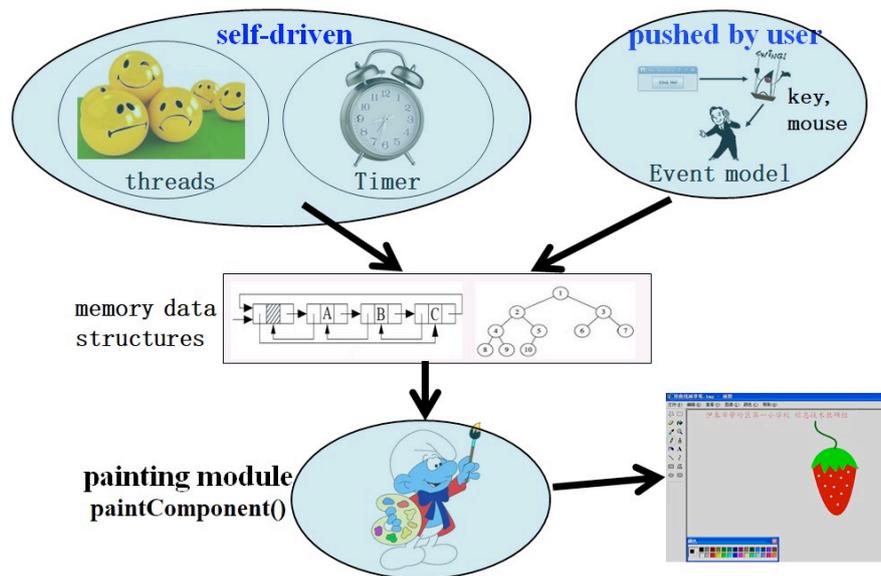


Figure 5: A general architecture of Java GUI games.

For a typical computer game, animation is the core foundation of the whole system. Lots of things are moving such as tanks, planes, guns, etc. However it is not easy to implement GUI animation especially for beginners. In Figure 5, we proposed a general architecture of Java GUI games, with which the students can realize any kind of GUI animation they want.

Typically there are two types of moving in a computer game, one is called self-driven, which means that type of object will move by itself. This can be implemented with Thread or Timer class in Java. The other moving is caused by user’s movements such as pressing a keyboard key or a mouse button. This can be implemented with the event model. Both types of moving will lead to the value changes of the data structures in memory. And there is an independent painting module (generally the paintComponent() function of the JPanel class) that is responsible for refreshing the screen.

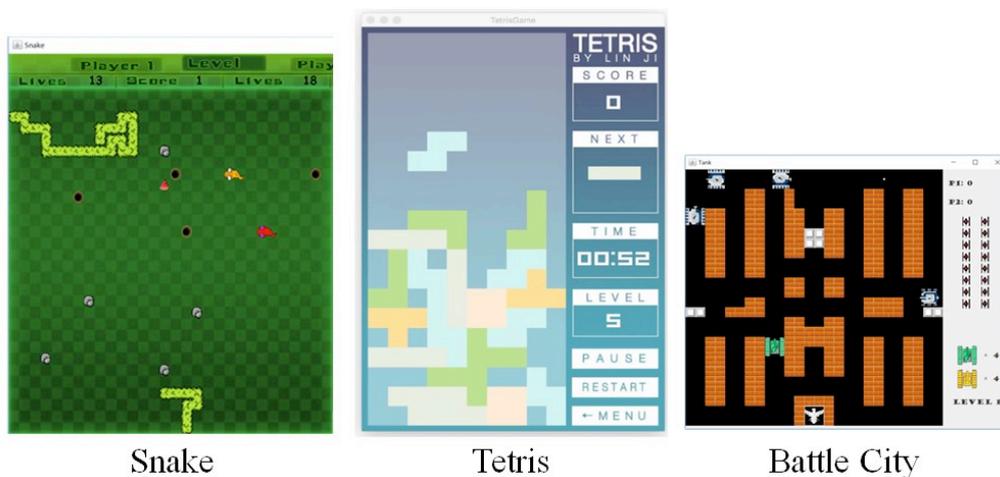


Figure 6: Games written by students.

During the past semesters, the students have written different types of computer games such as Snake, Tetris, Battle City, etc., which is demonstrated in Figure 6.

## Conclusion

We began to teach this course 6 years ago and about 720 students were enrolled totally. These students were from different majors and they only had basic programming experience before taking this course. The examination results and the programs they wrote indicate that they achieved major improvements after the course was over.

The grading policy of the course is: weekly assignments (30%), programming project (40%), final exam (25%) and class participation (5%).

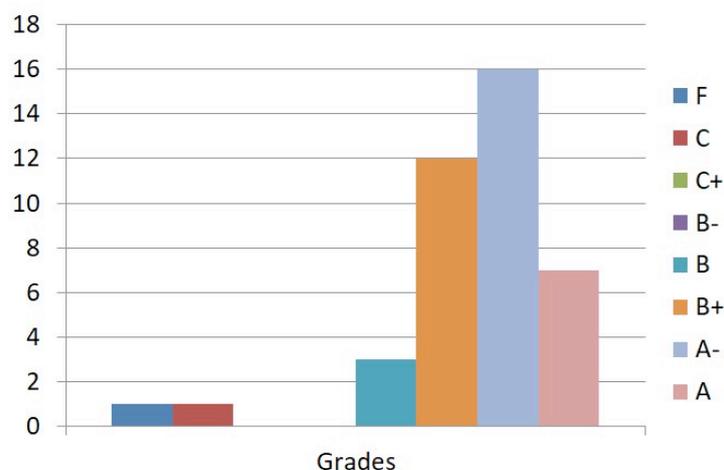


Figure 7: students' grades in the last semester.

Last semester, 40 students were enrolled in the course, and Figure 7 shows their final grades. 23 students (57%) got A or A- and 15 students (37%) got B+ or B. On the other hand, there was one student who failed the course. The reason is he didn't complete the programming project before the deadline.

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***Designing an Online Simulation Board Game with Realistic Patients and Dynamic Electrocardiogram Situations for Learning First Aid Abilities***

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**Abstract**

Due to the pandemic of COVID-19, many physical first aid courses have been converted to online courses. However, first aid courses emphasize providing realistic situations that facilitate the learner's ability to make accurate and immediate judgments and decisions according to patients' conditions. This study aims to develop an online educational board game, - *Heartbeat Moment* (beta) with a contextual and authentic learning environment using Google Jamboard application for learning first aid abilities. By providing simulated dynamic electrocardiogram data and descriptions of the patients' conditions to create an authentic environment and improve the ability to make correct decisions on the treatment methods according to the patient's condition. The learner also asked to decide the treatment sequence based on the electrocardiogram and clinical conditions of each patient card and adhere to the principle of priority treatment for emergency and severe cases. Through our preliminary analysis, it is found that. Although the progress in learning outcomes is limited (there was no significant difference between the scores of the pre-test and the post-test), the level of learner engagement is high. All learners were analyzed for their flow status and technology acceptance. The results showed that the overall flow and game acceptance were significantly higher than the median (the median in a five-point scale =3). A high level of flow means that the learner is fully engaged in the learning activity and demonstrates a high level of concentration, which is critical to first aid learning and may facilitate objective analysis and decision making for the patient's condition.

Keywords: Simulation-Based Learning, Online Educational Game, Board Game, Acute Care, Dynamic Electrocardiogram, Decision-Making

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## Introduction

Due to the COVID-19 epidemic, many first aid courses were then converted to online courses. However, the first aid courses pay great attention to authenticity and practicality, so that students are familiar with the actual situation and respond immediately after practicing to improve the treatment rate of patients. Many studies showed that first aid courses for nursing staffs in simulated situations with setting up real scenes and repeated simulation exercises to improve the quality of nursing patients is very important (Abelsson, Rystedt, Suserud & Lindwall, 2016 ; Kosoko, Glomb, Laba, Galapi, Shah, Rus, & Doughty, 2019).

Simulation games allow learners to learn problem-solving skills in the game, and apply actual situations through repeated operations and reflection on whether the decision is correct or not. Simulation games based on situated learning theory improve learners' learning transfer in real contexts (Hou, 2015; Hou & Li, 2014; Brown, Collins, & Duguid, 1989) and may increase students' learning motivation, academic performance and problem-solving ability (Huang, He, & Wang, 2020 ; Sung, Hwang, & Yen, 2014 ; Faizan, Loffler, Heininger, Utesch, & Kremer, 2019).

Misinterpretation of the electrocardiogram (ECG) may lead to inappropriate clinical decision-making, leading to undesirable consequences (Viljoen, Millar, Manning & Burch, 2020; Bogun et al., 2004) and even patient death. Simply teaching ECG courses without case sharing may hinder students from coordinating clinical situations and heart rate presentations, thereby affecting the speed of ECG interpretation and the quality of treatment for patients (Jablonover, Lundberg, Zhang, & Stagnaro, 2014; Graham, Jivendra, & Makani, 2015).

There are few simulation educational online gamification activities for ECG teaching courses recently. Therefore, our research team (Mini Educational Game development group in e-Learning Research Center, National Taiwan University of Science and Technology, NTUSTMEG) applied Google Jamboard to develop an online simulation board game, *Heartbeat Moment* (beta version).

Each learner has 3 pages of Google Jamboard. The emergency area on the first page contains 3 cards of the patient to be treated. After scanning the QR code on each patient card, the electrocardiogram of dynamically display will be shown, as well as the description of the patient's condition (including vital signs and chief complaints) (Figure 1). The second page has the treatment drugs and equipment may be needed by the patients (Figure 2), and the third page has the observation area or the death area for the patient cards according to the treatment results (Figure 3). At the same time, there will be 3 patient cards randomly entering the first page for emergency treatment. A total of 12 patients need to go through 4 levels. The bell will ring every 3 minutes. The learner must decide the treatment sequence based on the electrocardiogram and clinical conditions of each patient card, and adhere to the principle of priority treatment for emergency and severe cases. Each player has three opportunities to call an expert, who will provide clues and tips to help the player pass the level according to the current situation. If learners do not deal with the severe illness first, patient will be declared dead. The purpose of game-based learning activity is to facilitate students to assess the clinical condition of the patient based on their own prior knowledge and cultivate the correct decision-making ability.



Figure 1 The emergency area on the first page



Figure 2 The second page has the treatment drugs and equipments

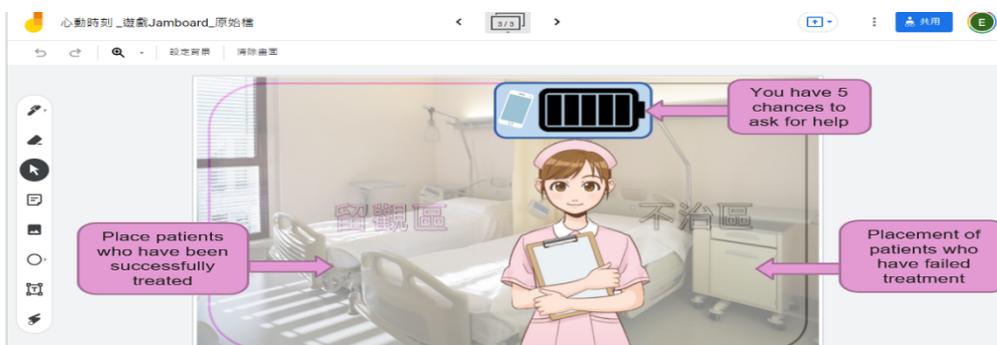


Figure 3 The third page has the observation area or the death area

### Research Purposes and Questions

This study aims to explore students' learning performance, flow and game acceptance during the game. The research purposes of this study are as follows:

1. To explore learners' learning performance of online simulation board game
2. To explore learners' flow of online simulation board game
3. To explore learners' game acceptance of online simulation board game

### Method

Participants in this study were 12 adults (1 male, 11 female) in Taiwan, and they were all emergency room nurses. Each participant uses a personal computer to participate in learning

activities. In the analysis of learning performance, the contents of pretest and the posttest were the same. The test was designed referring to the case of investigating the Advanced Cardiac Life Support, 10 items in total. The questionnaire contains flow and game acceptance scales. To evaluate the learners' flow, this study applied Kiili (2006) flow scale which was translated and revised by Hou and Li (2014). The flow scale includes two dimensions, namely the flow antecedent and flow experience. All scales were scored on a five-point Likert scale, a total of 22 items, and reached a very high degree of consistency (Cronbach's  $\alpha = 0.91$ ). Regarding the acceptance, the study adapted and revised Davis's (1989) The Technology Acceptance Model items. There are 8 items including usefulness, ease of use, and game elements. Cronbach's  $\alpha = 0.89$  reached high degree of consistency. Learning activity procedures were as follow: first learners had the pretest (10 minutes), and played the game (30 minutes). Then, after the gameplay, there were the posttest (10 minutes) and the flow and game acceptance questionnaires (10 minutes).

## Results and Discussions

For learning performance, a Wilcoxon signed rank test was used to compare the results showed there was a no significant difference in the score for the pre-test and post-test ( $Z = -1.127$ ,  $p = .26$ ). The result found that the learner's performance was not enhanced significantly. The possible reason is that the learners may only tried to imitated the behaviors or process of their predecessors in working places, but did not know the principle of treatment. Therefore, learners cannot answer the correct answer in the tests because they do not understand the real reason for treatment. As for the flow, the overall flow score ( $M = 4.34$ ), sub-dimension flow antecedent ( $M = 4.29$ ), and sub-dimension flow experience ( $M = 4.38$ ) showed the high flow scores. The result of flow was analyzed by one sample t test, and the result showed that all dimensions were significantly ( $p < 0.05$ ) higher than the median (median of the five-point system = 3). Learners were very engaged in the game.

The result of game acceptance was analyzed by one sample t-tests., and the result revealed that usefulness ( $M = 4.80$ ), ease of use ( $M = 4.53$ ), and game elements ( $M = 4.61$ ), were also significantly ( $p < 0.001$ ) higher than the median (the median in a five-point scale = 3). Learners had a high degree of acceptance of the game, and considered it is helpful and easy to operate for learning.

Table 1 The Mean and Standard Deviation of Learning Performance.

	M	SD	Z	Sig.
pre-test	56.67	23.87	-1.127	.26
post-test	60.00	25.23		

\* $p < .05$

Table 2 The Mean and Standard Deviation of Flow State Scores.

Dimensions	M	SD	t
<b>Flow antecedents</b>	4.29	0.66	6.74***
Challenge	4.21	1.01	4.14*
Goal	4.67	0.54	10.76***
Feedback	4.29	0.78	5.72***
Control	4.42	0.85	5.79***
Playability	3.88	1.05	2.90*
<b>Flow experience</b>	4.38	0.42	11.53***
Concentration	4.60	0.47	11.82***

Time distortion	3.83	1.07	2.69*
Autotelic experience	4.73	0.39	15.32***
Loss of self-consciousness	3.80	1.23	2.22*
<b>Overall Flow</b>	<b>4.34</b>	<b>0.46</b>	<b>10.13***</b>

\*  $p < .05$ , \*\*  $p < .001$

Table3 The Mean and Standard Deviation of Technology Acceptance Model, TAM State Scores.

Dimensions	M	SD	t
usefulness	4.80	0.40	15.65***
ease of use	4.53	0.52	10.15***
Game elements	4.61	0.53	10.56***

\*\*\*  $p < .001$

## Conclusion

This study developed an online simulation board game, *Heartbeat Moment* (beta version) and learners were all involved and engaged in the game and considered that this game could assist their learning and easy to use. However, the learning performance was not significantly improved. It might be that learners only imitated behavior without in-depth understanding the real reason for treatment.

This online educational board game is closer to the actual clinical situation, and the simulation of authenticity may be helpful to the learning practice. The online simulation board game promotes learners' flow and repeat the exercises. For the future study, design cognitive mechanism to help learners understand the reason behind the treatment should be considered. Empirical study with control group needs to be conducted to deeply investigate the effectiveness of online educational board game.

## Acknowledgements

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## *An Exploratory Study on Racial Experiences and Resiliency of Foreign Medical Students*

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### **Abstract**

Medical students aspire to gain a degree in a foreign land and encounter new experiences in the host country. The aim of the study was to explore the lived racial experiences of foreign medical students. A qualitative phenomenological approach was utilized by the researcher. Foreign medical students (N=15) participated in an open ended interview questions. Thematic analysis showed that the participants defined racism as being judged based on skin color, race, and caste. Moreover, the results showed that the participants' were hurt, sad, angry and disappointed resulting to emotional distancing. They sought family support through open and constant communication. Likewise group of friends provided the sense of safety and security inside and outside the educational environment. Participants handled their experiences cognitively by avoiding negative thoughts and staying positive; and behaviorally by being passive, staying calm and ignoring people who discriminate them. They reached out, made friends with other people and assimilated the host culture. The racial experiences of the participants in their educational environment helped them to become resilient and focused on their goal.

Keywords: Racism, Resiliency, Foreign Students, Lived Experiences

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## Introduction

It is quite ironic and perplexing in today's time when you view what is going on in the world. Since before the issue of 'racism' brought about drastic consequences to the lives of people all over the world. Just when one think that we have evolve to a better unified future globally, the underlying existing social behavior shows its evil head again. Any type of social behavior or actions with unusual awareness of such social negative actions is very prominent all over the world. The reality of racism is an element of the representation of the social world and is the characteristic of the mainstream that makes it work. Groups are founded with the self-interpretation where the central myth underlies prejudices that are rationalized and institutionalized. From the phenomenological perspective, racism is a phenomenon of negative sociality.

The steady rise in the number of international students in higher education has been a growth in the research dedicated to the international sojourn, defined by Ward, (2015) as temporary between-culture contact. Given the economic dependence of universities on the fees from international students, it is important that there is a clear understanding of the issues facing them if an optimum service is to be delivered, so that student retention is improved and positive word of mouth helps to increase recruitment. Increased numbers of international students in British higher education and intensified competition for their recruitment both nationally and internationally have put pressure on institutions to improve their product.

Encounters with racism and the international student experience by Brown and Jones (2013), surveyed 153 international postgraduate students, 49 had experienced some form of abuse. In most cases, this took the form of verbal abuse though racism manifested physically for nine students. Strong emotional reactions were reported, including sadness, disappointment, homesickness and anger. There was a consequent reluctance to return to the UK as a leisure tourist or to offer positive word of mouth to future students. The aim of the study was to gauge the incidence of racism visited on a cohort of international students in England and to explore its impact on the student experience.

Truong and Museus (2012) conducted semi-structured interviews with 26 participants who experienced racism and racial trauma in doctoral study. They presented a taxonomy of how doctoral students of color cope and respond to racism in their programs. Participants reported using a variety of approaches to maintain their well-being and negotiate relationships within their programs, such as utilizing support networks, avoiding racist environments, transferring out of their programs, seeking interventions, and documenting and filing complaints.

According to Salahuddin and O'Brien (2011), if, when confronted with racism, a person can maintain pride and strong self-esteem, and avoid harmful outcomes such as depression and social dislocation, they can be said to exhibit resilience. Pyke (2010) have identified that much of the harm of racism comes from its internalization by those who experience it.

Development, change or any movement involving intricate process of cultural, linguistic, social, psychological, and geographical changes across culture may result to traumatic experiences. Accommodating and assimilating the shift and merging of cultures includes conflict of cultural beliefs of groups, language or communication barriers or difficulties and perceived notions of prejudices and discriminations. It is a two-way and multidimensional process of various level of change in behavior, values, and interactions resulting from cultural experiences.

Every once in a while the effects of racism is felt thru to some events or experience that reminds how damaging or hurtful the experience is to all especially students. Researchers from time to time have studied and documented the influence and effect of racism on the human psyche.

Cultural bigotry and judgement are happening everyday even right now including schools. It happens distinguishably between minority and majority members of a community. The consequences of the experiences of racial discrimination are very severe from the range of psychological mental health to physical health or even death.

Thus, the experiences the students encountered evidently gives rise in utilizing their coping mechanism in order to function more effectively in school to reach their goals. Students experience great anxiety and distress when targeted. Feelings of fear, low self-esteem, lack of confidence, low academic performance and depression are experienced.

### **Theoretical Framework**

Critical race theory (CRT), created by Bell and Freeman, an organizing framework useful in understanding human behavior and social processes relevant to racial group categorizations and racial stratification. The theory examines the oppressive dynamics of society to inform about individual, group and social transformation. It places race at the center of the analysis and provides a critical perspective on how racial stratification continues to influence the lives of racial/ethnic minorities.

Cognitive-relational emotion theory (Lazarus & Folkman), where the qualitative data are gathered and describe, particularly the relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being.

Resilience theory of Norman Garmezy states that, someone with great resilience is not necessarily someone who is extremely brave despite adversity, it is someone who is able to show functional adequacy despite the emotional turmoil.

The distress is associated with the feelings of being rejected, isolated and ostracized. The victim being targeted cannot do anything – color of the skin and hair, difference in size or shape, their religious belief or cultural heritage/background. The attacker develops at the same a sense of false pride when it comes to superiority. The ironic situation is that teachers and parents are unaware of the cruelty and distress, or misery being felt and inflicted to the student.

The purpose of the research was to explore, acknowledge and draw a mind map of the participants' experiences with racism and how it has affected their cognitive, affective and behavior, how they coped and became resilient from their experiences.

### **Statement of the Purpose**

The researcher wanted to know the following:

1. What were the thoughts of the participants about their racial experience?
2. How affected were the participants of the experience?
3. What were the reactions of the participants on their racial experiences?
4. How did the participants' handled the racial experiences?

The research study was to provide a qualitative examination of the lived racial experiences of the foreign medical students and to lay hold of and describe the phenomena of racism to have an understanding and describe what it is like to be a foreign medical student and how the racial experience is handled and resilience they develop due to the experience.

## **Methods**

A qualitative phenomenological approach was utilized in the study. It was used to distill data, determining broad patterns to conduct a more thematic granular research and analysis. It used an interview as an instrument to gather the racial experiences and coping styles that developed the resiliency of the participants from the experiences.

A researchers-made open-ended interview questions were open ended questions used to gather the needed data for the categories and themes. The qualitative data helped to gather detailed views of the participants.

Thematic analysis as defined (Saldana, 2015; Boyatzis,1998) was used as a means to gain insight and knowledge from data gathered. The method enabled the researcher to develop a deeper appreciation for the group or situation being researched. By using thematic analysis to distill data, the researcher determined broad patterns to conduct a more granular research and analysis. Themes from the data gathered and not imposed or predetermined.

The participants of the study were the foreign medical students of the University of Perpetual Help System DALTA. The sampling criterion for the qualitative research was purposive. 15 participants with ages ranging from 20-23 years old were picked to participate in the interview who are studying Medicine Program.

## **Findings**

Racism was defined by the participants as a discriminative form of behavior towards differences in race, religion, culture, color, etc. Stereotyping based on one bad experience from one individual has been generalized towards the whole race. Participants felt stereotyped particularly with the odor and the behavior or some. They felt hurt, disappointed and angry.

The racial experiences have been taken deeply that it affected the participants cognitively, affectively and with that their behavior towards the experience has been ignorance, letting it pass and avoidance.

Biases, discrimination and unfair treatment of professor was consistently mentioned by the participants. These participants were my students during their bachelor degree and they were bubbly, participative, and very active in class and around the university. It was quite refreshing handling foreign students. Learning their culture, beliefs and practices were an eye opener to me as a researcher. To become more effective with them I had to learn from them as they well also learn from us.

All participants resorted to ignoring the racial experiences. "Ignorance is a bliss," as they say. To me this is the key to the resiliency of the students. Whether ignoring, letting it go and avoiding racial incidences these reactions guided the students developing their resiliency towards racism.

Table 1: Themes

Theme #1	Subthemes	Transcript
<p><b>Cognitive</b></p> <p>The mental or psychological state of the lived racial experiences which the participants goes through that caused to question their sense of identity, heritage and culture. At the same time utilizing these inherited customs leading them to stay positive and optimistic towards their goal.</p>	<p>Sense of Identity</p>	<p>“It’s not my fault I’m like this, I was made like this...I didn’t choose to be like this. I’m very happy of who I am. It doesn’t matter what others think of me. I accept myself.” P9</p> <p>“I know and I stand to what I believe in....the way you live and what we live by like rules, culture and religious practices.” P1</p>
	<p>Staying Positive</p>	<p>“...I have no problem accepting and correcting as I must. It is an inconvenience to them and to the country that I have inhibited in....I must adapt to the cultural norms and expectations.“ P4</p>
Theme #2	Subthemes	Transcript
<p><b>Affective</b></p> <p>The emotions that the participants felt with their lived racial experiences, facing the surge of feelings such as sadness, anger, disappointment and confusion that they have never felt before. This brought the avoidance or emotional detachment, resulting in seeking support from family members and friends within their race.</p>	<p>Emotional Distancing</p>	<p>“.....I feel hurt and I ask myself why, but I keep it to myself and shake the feeling off so it will not affect me.” P1</p> <p>“...I didn’t feel good at all.... I feel a bit sad and you do feel fear ....I just ignore those racial slurs and remarks.” P2</p>
	<p>Seeking Support</p>	<p>“.... I go with my friends, talk to my own kind especially to my family. ....It helps me feel close at home and safe and secure no matter how far they are....I stick to my group of friends to feel safe.” P11</p>
Theme #3	Subthemes	Transcript
<p>Behavioral</p> <p>Responses of their behavior towards the lived racial experiences manifested to the way they react to the encountered</p>	<p>Staying Calm</p>	<p>“Like I said...I don’t pay attention... I just keep my cool and continue doing what I’m doing.” P10</p> <p>“... making jokes.. out of any small things....just to keep up to finish the</p>

<p>situation such as staying calm and collected ignoring the experience/s. Also challenging the racial experiences by not responding directly or reasoning out. Keeping their angry thoughts inside or by simply dissociating themselves with the situation.</p>		<p>ordeal .... we don't want to make a fuss. " P7</p>
	<p>Challenging Racism</p>	<p>"I try to protest it as much as I can, but people tend to overpower you. So sometimes it becomes useless." P12 "... raise my voice against it no matter how strong the other side of the argument is. P15</p>
<p><b>Resiliency</b></p>	<p><b>Transcript</b></p>	
<p>How the participants coped and handled their lived racial experiences have contributed highly to the development of their resiliency in order achieved their goals. By being understanding to the diversity, not giving much thought to the experiences, not being offended, letting go of the angst, being positive and getting rid of the negative thought.</p>	<p>"....there's just lots of diversity....you have to talk to them...and to understand them." P2 "I don't give it much thought...." P3 "I have been able to overcome and actually portray myself alone not as an Indian as an individual as supposed to an entire country" P4 ".....I ignore because I know that those people don't have a broad perspective....." P6 "Frankly I just let it go .....not going to stay in this country for a long time.....so probably I'm not going to experience it again so just let it go." P8 "To be positive. To get rid of negative thoughts." P14 "I don't get offended when I talk in English cause I tried. The accent is different, but the thing is I try." P13</p>	

**Discussions**

Racism, what does it mean to each participants', since the term encompasses a wide range of definition depending on the situation based on the race, color and religion, where people feel they are superior towards others. presented at the moment. It can fuel present situation or precipitate situations that has laid dormant before. It can be beliefs that characterizes the abilities attributed to a person or people. Racism has been used to discriminate individuals to foster fear or hatred influencing how we relate to other people.

Migrating from one's culture to another culture that is quite alien with communication barrier, lack of accessibility such as food, place of worship ad being alone without a family member nearby affects the well-being of the impressionable young adult that can lead to detrimental outcomes to their mental and physical health.

The participants of the research are the foreign international medical students who have been in the university since their bachelor programs proceeding to medicine. Interviewing the participants individually gave them a sense of security and confidentiality about their identity. They were a little bit more comfortable in sharing their experiences once they felt secure. Their willingness to share the experiences was a way for them to relate their racial experiences and somehow get some answers to their question brought about by the encounters.

The participants acknowledged that they have felt emotions like they never felt before when it came to their racial experiences. Sadness, disappointments and especially anger were experienced. The racial experiences of the participants is supported by the study of Brown and Jones (2013). They felt hurt to the way they were treated, being neglected, rejected and avoided within the campus even though they tried to communicate and associate with the local (Filipinos) concerning their studies among other things. They think they are misunderstood and not given a chance to be known individually but instead stereotyped based on the bad experiences the locals had with some other foreigners. These results is supported by Salahuddin and O'Brien (2011) and Pyke (2010).

The racial experiences had been taken deeply that it affected the participants cognitively, emotionally and with that their behavior towards the experience has been ignoring the incidents, letting it pass and avoid situations that lead to the experience/s.

They coped by avoiding probable racial experiences, seeking support from families and friends of the same race, staying calm and positive and with their perseverance, resiliency was developed so as they can reach their goals. The experiences developed hardness within the participants. Sadness was first felt then hardness inside. It shows that the racial experiences developed the participants' road to resiliency. The way they cope and handled the situation successfully. One also stated that the reason for ignoring the racial experiences was because they are only here temporarily and stay together within their own network to feel secured and be safe. They will be going home once they graduated. As this result is supported by Truong and Museus (2012).

The racial experiences that the participants shared were mostly concentrated within the campus since their daily routine revolve around the campus including living within and around the university. College life according to them was supposed to fun filled activities associated with the academe, but it seems that the local does not want to involve them with the college activities. No recognition and importance were given as part of the academe making them feel inferior. They have understood the situation so they also expect some unbiased consideration to their situation. They do not demand priority but rather fair and unbiased treatment.

## **Conclusions**

Based on the results and discussions, the following conclusions were derived. All participants' concept of racism is form of treating another person based on race, color and culture. Being discriminated due to the difference from one another. Some were not easily forthcoming with personally experiencing racism, but slowly shared their experiences by citing instances of racial experiences.

Learning more about the diversity of cultures of the foreign students will help the institution prepare themselves in catering the academic needs of the students as well as their social needs. Repeated racial experiences should be prevented to prevent further mental and physical health problems. Further, activities and accommodations should be available since the students resides within the campus and the surrounding area which is close by to the university. These repeated experiences will affect the students mental and physical health. Hatred and fear developed due to the repetition of the experiences is detrimental to one's capacity to function fully.

## **Acknowledgement**

I would like to thank my parents Mr. Vicente and Dr. Luz S. Salazar for their undying encouragement and support. May God Bless their Souls. The participants who made this research possible and colleagues who nudge me to go on. And last but not the least the support and guidance my dearest friends have given me especially the research help of Dr. Ma. Lea A. Ronda. Thank you so much is the most simplest way I can express my utmost gratitude.

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## ***Design Innovation Practice School: The Experiential Learning Platform***

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The Asian Conference on Education 2021  
Official Conference Proceedings

### **Abstract**

This article describes the ongoing study of designing and developing the undergraduate program in Design Innovation of King Mongkut's University of Technology Thonburi. The design-based research methodology has been applied to investigate the attempt in curricular transformation in addition to routinized curriculum revision practices. The concerns related to career readiness of graduates or competency gap are widely addressed from employers' perspectives in various business sectors with their expectations toward academia. Meanwhile, several national higher-education policies are likely to react to this qualitative dilemma as for instance by introducing the outcome-based education rationale into action. Correspondingly, Design Innovation Program has aimed for transforming not only theoretical aspect but also to the new paradigm of the curricular ecosystem, then carried out design-based research with a series of approaches including stakeholder's feedback collection for program analysis, pedagogical prototype testing, and formative evaluation to design curriculum structure including program learning outcomes, teaching and learning approach, student assessment. In conjunction with professional and academic partners internationally, work-integrated learning with cross-cultural learning could play major roles to create efficient learning experiences. As a result, the program has launched Design Innovation Practice School, the experiential learning platform, in which partner's workplace shall be arranged more academic than typical internship or apprenticeship approach to bridge the gaps of industry's demands, and to challenge the status quo in higher education administration. However, the academia-industry consortium model is to be created to sustain long-term relationships with mutual benefits.

Keywords: Design Innovation, Experiential Learning, Practice School, Work-Integrated Learning

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## Introduction

Industrial Design Program (IDP) was established in 1999 during the period of recovery after the outbreak of the crisis in Thailand especially in the industrial production and manufacturing sectors. The program emphasized developing students' competencies more toward designing products with the human-centric design philosophy. Afterward, the evolution of UI/UX design has become the driving factor that brought curriculum into the era of digital transformation with the trend of the design industry which significantly diversified to the digital platform and service design. Until 2020, IDP's journey had arrived at its crucial turning point for the transformation to be "Design Innovation Practice School: The Experiential Learning Platform"

## Methodology

The design-based research methodology (Amiel & Reeves, 2008) has been applied in addition to the routinized curriculum revision practices due to nowadays disruptive moments realized by the program revision task force. The program's minor change may not be able to serve the business sectors and social needs or even the upcoming generation of learners. The task force decided to align the design-based research by combining the backward curriculum design process (Wiggins & McTighe, 2006) with the program's experiment to develop its key teaching and learning strategy by academic-industry collaboration as a series of approaches to allow for the flexibility along with the curriculum development (Barab & Squire, 2004). The backward curriculum design is part of the outcome-based education's approach which is primarily concerned with students' culminating capabilities at graduation time and centers curriculum and assessment design around higher-order exit outcomes (Spady & Marshall, 1991). Starting with the program's self-review, the stakeholders' needs and feedbacks towards the current curriculum or graduates are acquired as the inputs for designing the program learning outcomes. Several forms of research included the satisfaction surveys to students and graduates, the focus-group interviewing workshops to academic staff, alumni, employers, and program's design business partners, and the academic & professional experts' suggestions. Correspondingly, the program development task force brainstormed for the new program and course structures likewise the program learning outcomes, the assessment approaches, and the teaching and learning strategies.

To elaborate on the program's self-assessment, the key teaching and learning strategy had been continuously developed from an internship, the intended-learning opportunities as the students' outreach activities, to more collaborative partnerships with the design industry and business sectors. The opportunity became the strength of the program to let students involve with real-condition design projects since the basic knowledge and skills were instilled in the foundation years. In other words, the program attempted to prototype the work-integrated learning in association with the design academic and industry partners throughout the semester by integrating several courses into workplaces. Nevertheless, the supervision of academic staff was arranged and coordinated with workplace supervisors, and recently, the experiential learning model (Kolb and Kolb, 2017) has been set as the new paradigm for the program to prepare the graduates' readiness in design innovation businesses.

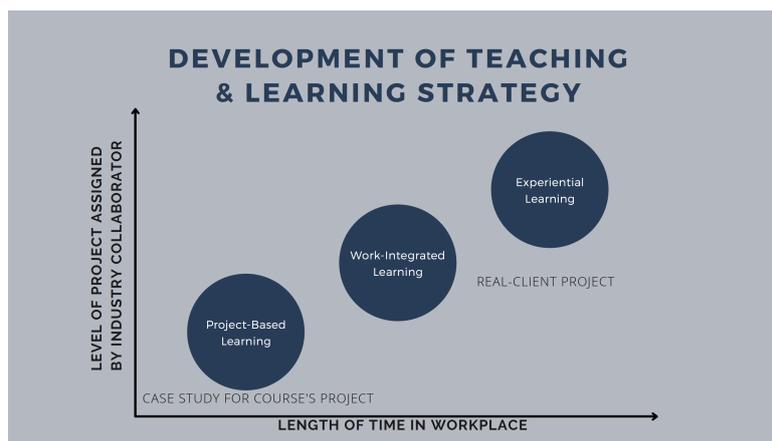


Figure 1: Development of Teaching and Learning Strategies from Industrial Design to Design Innovation Program

## Results

The program has launched Design Innovation Practice School, the experiential learning platform, in which partner's workplace shall be arranged more academic than typical internship or apprenticeship approach to bridge the gaps of industry's demands. The learning process whereby knowledge is created through the transformation of experience (Kolb and Kolb, 2017) has been planned to be mainly in industry partner workplaces with assigned full-time academic staff supervision to achieve the key program learning outcome – professionalism. Meanwhile, the knowledge and skills of the curriculum are evolved from the single discipline in design and are currently characterized to be more multidisciplinary comprised of art & design, business & entrepreneurship, technology & innovation with a core philosophy in human-centric design in order to let students develop their design entrepreneurial mindset. And for another key program learning outcome – global citizen mindset, the program strategically aims to manage international collaboration with academic networks internationally for multicultural outlook enhancement. The learning assessment approaches also need to be aligned with different learning scenarios. The academic staff's supervision as site director will be responsible for peer assessment with partner supervisor while co-facilitating student learning with professional context and environment. The learning modules could potentially be designed and built in either online or physical platforms to serve more learners' diversity with their particular assessment criteria for each module learning outcome. And to assess students' global citizen mindset within the international activities and workshops, the program expectation is to be aware of and understand the wider world in similarity or difference of cultural contexts through hands-on experience.

The concept of the experiential learning platform was derived by consolidating the program's strengths and key findings from stakeholders' feedbacks. In clarification, networking with industries and design business has been one of the significant resources for the program to continuously improve the project-based learning approach which is quite similar in general design study programs, then considerably evolve into the best practice regarding the opportunities provided for students to be parts of the real business contexts in research and design. Some design projects have been commercialized in domestic and some even in international markets. In addition, another kind of learning opportunity with high satisfaction from students is the international inbound-outbound seminar and workshop. The intensive week is always co-organized with the academic institution abroad several times a year.

Students and academic staff among these collaborative activities can learn and share their cross-cultural experiences together with also the chance to experience worldwide. The benefits of the international activities are not only the fruitful learning in cultural diversity and communication, but also the soft skills including the higher-order thinking skills with leadership and teamwork in which the graduates' characteristics are enhanced.

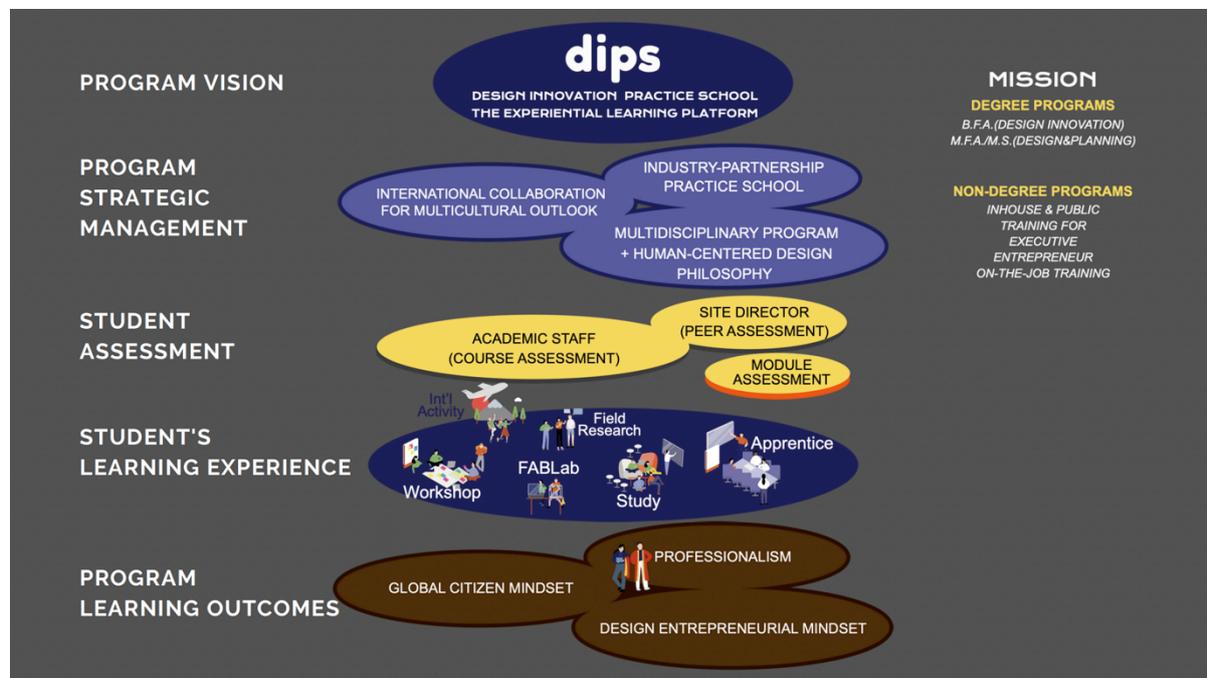


Figure 2: The framework of Design Innovation Practice School – The Experiential Learning Platform.

## Conclusion

The integration of the program's missions among education, research, and academic service seems to be the direction that will lead the program to success, but in fact, the implications with several factors are still required to be administrated by not only within the program's level. Further research is expected to focus on two main areas. First, the students' assessment methods should be adopted and be congruent with the expected learning outcomes. The practicality in assessing learners' competencies within the different learning environments is needed to be scrutinized and designed. And as importantly, the clarification in the academia-industry relationship models should be carefully figured out to find their mutual benefits along with this collaborative platform. Several issues are still waiting to be fulfilled such problem of why the business sectors need to contribute their resources for the student's learning, and/or how the program could manage the learning activities within the workplace in compliance with its curriculum.

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***Strategies of Selected HEIs in Addressing Challenges and Issues Inherent to Student Mobility***

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**Abstract**

Internationalization initiatives in student mobility of selected higher education institutions (HEIs) in Davao region, Philippines certainly set the ground for an internationalization effort to cope with the challenges of globalization. However, HEIs being an open system is not immune to challenges and issues which might put the internationalization efforts of HEIs in student mobility at risk and in the end might result in limited planning and long term policies on regional internationalization process. As per experiences of the respondents in this study, the concrete actions for change in order to manage the challenges and issues inherent to student mobility includes non-academic endeavor: providing support in terms of budget and infrastructure development and academic endeavors : aligning the curriculum to meet international standards, strengthening the curriculum to meet international standards, establishing linkages and collaborations with foreign HEIs, aligning school calendar between two HEIs, teamwork, and sharing of responsibility. Implications of these experiences to theory, policy, and present practices of Philippine HEIs are also discussed.

Keywords: HEIs, Strategies, Student Mobility

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## Introduction

The Philippines, just like the rest of the countries in the world is beset by increasingly uncertain changes brought about by globalization (Abas and Imam, 2016). It is an irreversible reality of human life and its impact has seeped into the educational sector and has challenged traditional institutions (Tullao,2003). Ota (2018) and Rose and McKinley (2017) both cited globalization which transfers people, goods and services, money, information, and ideas rapidly across national borders, posit that globalization is having a major impact in the field of higher educational institutions (HEIs). Due to globalization, many countries ensure that higher education is able to provide both professional knowledge/skills and all-around attributes to the graduates so as to enable them to face the diversified yet global demands of the 21<sup>st</sup> century society (De Guzman, et al.,2017). As expected, the demands of globalization have added more challenges to higher education as universities are being asked to help meet major international challenges, to educate students in their disciplines with a sense of global competence and engagement, and to contribute to local and national economic perspectives (Morris, 2009). In the Philippines, the country contends not only with local quality assurance measures but with regional and international benchmarks. Moreover, world and Asia university rankings, international accreditation and quality assessment, faculty and student exchange, research publication and citation, and international networking and linkages have become essential considerations that are inevitably transforming the academic landscape (Carillo, 2017). In recent years, many countries have undertaken reform programmes in addressing these challenges. One way to address this globalization trend is to internationalize the higher education institutions (HEIs). Thus, internationalization has become a key strategy for all tertiary education systems in the world, and the Philippines is no exception (Gacel-Avila, Bustos-Aguirre, Freire Jr, 2017). In the Philippine context, the internationalization initiatives of HEIs can be attributed to the country's integration into the Association of Southeast Asian Nations (ASEAN) community. When the ASEAN Economic Community (AEC) was formally established in 2015, ASEAN countries became more open to each other in terms of products and services mobility (Madula,2018). According to Cinches, et al., (2017), an in-depth understanding of internationalization initiatives is essential for school management to sustain internationalization effort.

Presently, student mobility is a leading cross-border internationalization activity both inbound and outbound mobility. It is expected to increase since ASEAN countries have adopted various strategies and policies to stimulate student mobility so it is prudent to understand these diverse activities since it has been observed that while student mobility may help Southeast Asia improve its higher education, it can also cause conflicts and challenges such as brain drain and foreign dependency (Do and Pham,2014). In the Philippines, the country's Commission on Higher Education (CHED) has issued several Memorandum Order (CMOs) in order to guide HEIs in their internationalization efforts especially when it comes to student mobility, but it has not been without its share of challenges. To the researcher's knowledge, selected HEIs in the Davao region lacks baseline data on this matter especially as to how the HEIs management addresses the challenges and issues inherent to student mobility. Thus, this study.

## Theoretical Framework

This study is anchored on three theoretical underpinnings namely; Open-System theory, Contingency theory, and Bureaucratic theory. The enumerated theories have certain common aspects, it all stresses the need of an organization to change, to be flexible, and adapt amidst changing circumstances. Also, the three theories complement each other by stating that the

adaptability of the organization to changing circumstances is essential for a successful management system. Applying these principles imply that System theory sees HEIs being part of a system as an adaptive system since it interacts between the external environment and the system's subparts and the subparts themselves. This is supported by the loose coupling perspective of the Bureaucratic theory which articulates that leaders of an organization must be flexible and adapt to the present needs of society which in this study is the internationalization as mandated by CHED. Internationalization of HEIs requires an integration of an international, intercultural dimension into the teaching (learning), research and service functions of an institution. Change needs to occur at these levels for it to be effective. Contingency theory stresses that HEIs leaders must be flexible and that a leader's style must match with the present situation and adapt to the changing circumstances. This calls for a new leadership in order to triumph these challenges most especially that today's higher education is surrounded by uncertainty and challenges brought about by globalization. The institution and its people need to change and transform to the changing scenario.

## **Methodology**

This study employed a qualitative approach using phenomenological research since the study required a detailed understanding of a central phenomenon which is the cross-border internationalization initiatives particularly student mobility among the five (5) selected HEIs in Davao region. Data collection in this study involved key respondent's interview as source of primary data and document review as secondary data in order to extract information and data relating to the selected HEIs student mobility activities. In the key respondent's interview, a researcher made semi-structured interview guide was used. The responses of the 26 key respondents during the actual interview provided mainly the qualitative information. The respondents were the following: Vice President for Academic Affairs, Head of International Office, Dean of the different colleges, and one accompanying Faculty per college. Purposive sampling was used in choosing the identified key respondents.

In analyzing and interpreting the data gathered in this study, thematic analysis was done on information gathered from interviews of the various key respondents. The responses verbalized by the key respondents were transcribed into word documents. The process allowed for patterns/themes to be identified and for comparison to be established with what the key respondents said and how the concepts was understood.

At the onset of conducting this study, ethical issues were considered immediately by seeking approval of the researcher's adviser, Graduate School Research Coordinator, and the Dean of the Graduate School to allow the researcher to gather data. Once approved, letters of approval to conduct data gathering were secured from the President of the selected HEIs in Davao region. Lastly, a letter of consent was secured from the identified HEIs key respondents before the actual interview and a certificate of appearance was also secured after the interview. Codes were used to protect the identity of the selected HEIs and the various key respondents.

## **Summary of Findings**

The findings of the study revealed that student mobility is not a new phenomenon anymore to the selected HEIs respondents in Davao region. However, certain challenges and issues are affecting the operation of student mobility in the region. As per experiences, the selected HEIs have concrete actions for change in order to address the challenges and issues inherent to student mobility. These strategies include non-academic endeavor such as providing support

to student mobility initiatives in terms of financial (example: allotting budget for paper presentation and travel funds), and infrastructure development (example: construction of dormitory for international students). Meanwhile, the academic endeavors include the following: a.) aligning the curriculum to meet international standards by adding foreign language in the curriculum, b.) strengthening the curriculum to meet international standards by incorporating international practices into the curriculum such as the following: changing the grading system from numerical to letter grade, international benchmarking, adapting the credit transfer scheme, incorporating transcultural inputs in the courses, offering of new courses and conduct of on the job training (OJT) abroad, applying for international certifications, and focusing on institutional programs considered as Center of Development (COD) and Center of Excellence (COE), c.) establishing linkages and collaborations with foreign HEIs by attending international activities, maintaining membership in international organization, and memorandum of agreement (MOA) signing with partner HEIs abroad, d.) aligning school calendar between two HEIs by changing school calendar from June to August to match with foreign HEIs, e.) teamwork between HEIs management and stakeholders by establishing good relationship and full support between HEIs management and its stakeholders, and lastly, f.) internationalization is a shared responsibility as shown in the concerted efforts of all sectors in the university and the collaboration and cooperation of the HEIs.

## **Conclusion**

In this time of globalization and ASEAN integration the selected HEIs in Davao region, Philippines has been engaging in cross-border internationalization initiatives particularly student mobility. The academic and non-academic endeavors of the HEIs are concrete actions for change in order to address the challenges and issues inherent to student mobility. The implications of the experiences of the key respondents in this particular study to the theory, policy, and present practices of Philippine HEIs are discussed below:

## **Theory**

The results of this study as to the lived experiences of the key respondents affirm the open-system characteristics of an organization such as HEIs that it cannot seal itself off from both the internal and external forces that affect the whole system. Due to globalization HEIs must adapt to international standards by changing certain practices in our education system that may not be appropriate anymore with the present need of the society. Likewise, the study affirms Contingency theory that sees HEIs as organizations that adapt to developing sound strategic plans that will fit the current circumstance and do away with some “traditions” that are no longer applicable in a globalized world. However, this study does not conform with the idea of the usual top to bottom management approach of the Bureaucratic theory. Instead, strategic planning and decision making on the internationalization agenda of the institution must involve teamwork and sharing of responsibility between the internal and external clientele of the institutions. In this study, a “decentralized” form of organization that is flexible and open to “top-down bottom up” approach seems to be the most ideal practice when it comes to internationalization of higher education.

There had been numerous studies and literature conducted about cross-border internationalization initiatives among universities abroad but minimal when it comes to HEIs in the Philippines and most especially in Davao region, Mindanao. The researcher finds no studies yet on the lived experiences of the school administrators and accompanying faculty who are involved in the internationalization initiatives of some selected HEIs in Davao region.

Thus, this baseline study presents a different and additional knowledge to the existing body of knowledge on cross-border internationalization of higher education specifically student mobility.

### **CHED Policy**

The CHED policy on internationalization of Philippine higher education gives a clear direction for the HEIs efforts to internationalize but it should not end there especially that based on the experiences of some key respondent's certain aspects of the CHED policy is "not encouraging" and not "internationalization-friendly." There is a need to revisit/review the policy on internationalization which will consider HEIs strengths and weaknesses, and with a support mechanism to encourage HEIs to pursue internationalization initiatives such as student mobility. The prospects of improving certain "imperfections" in the current CHED policies on internationalization is viable as long as CHED has a deep understanding of the current strengths and weaknesses of HEIs in the region in pursuit of student mobility.

### **HEIs Practice**

This particular research is a baseline study that focuses on the strategies of selected HEIs in Davao region in addressing the challenges and issues inherent to student mobility. This study contributes to the existing knowledge about cross-border internationalization specifically student mobility. Following the narratives of the key respondents, internationalization is essential in order to cope with the challenges of globalization. The diversity of inbound and outbound student exchange activities in the region certainly set the ground for an internationalization effort. The present practices of the HEIs in strengthening the curriculum to meet international standards, establishing linkages and collaborations with foreign HEIs, adapting to certain international practices, providing support in terms of budget and infrastructure development, as well as promoting collaboration, sharing, and teamwork within the institutions and its stakeholders are all good practices that must be continued and strengthened. The university governance has given way to participatory management leading to strategies for more cooperation and collaboration. These experiences are a reflection of how "resilient" and "flexible" the educators in Davao region that despite the challenges and issues along the road of cross-border internationalization initiatives specifically student mobility, they still adapt and change. The prospect of more student mobility collaborations and engagements in the future between Philippine HEIs particularly in the Davao region and universities abroad is very encouraging.

### **Acknowledgements**

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## ***The Present and Future of Online Distance Learning: Trends and Challenges of Virtual Teachers***

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### **Abstract**

In response to sustain quality education during pandemic and the need to address the needs of online distance learning, this research aims to investigate what are the trends and challenges virtual teachers experience after a year since remote learning has been implemented. This quantitative research was conducted through an adapted survey questionnaire most applicable to the study. The participants were Nursery to Grade 12 teachers of Baguio Patriotic High School. The respondents were selected using purposive sampling method. The teachers were asked about their experiences with online teaching, main challenges of switching to online/distance learning, support that they need and their opinion regarding schools fully reopening after COVID-19 pandemic. The study revealed that flexibility, innovation and a wide range of tools are what teachers pleasantly experienced about online/distance learning. However, keeping all pupils motivated and engaged was the main challenge for virtual teachers. With this, teachers need support and easy contact with experts, professional development and more free resources and tools from education technology companies. Teachers perceived that when schools fully reopen, online teaching will become integral to school practices. For support from the school, the teachers requested continuous technical training and education provide complete and adequate facilities including internet connection and lessen recorded video lessons. Awareness on the trends and challenges of online distance learning can be an eye opener to school administrators who are on the early stage of its implementation and can give appropriate support and help.

Keywords: Distance Online Learning, Online Teaching, Remote Learning, Trends, Challenges

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## Introduction

Remote learning or distant learning has been the new normal for over a year now. The education sector is taking this opportunity to reshape the way children are being taught. One of the most significant changes is the promotion of flexible learning in which there are learning programs created based on the capacity of students, and schools.

On the first week of remote learning, students may understandably miss their friends in school. After a week or two, they may start to show fatigue and lose interest in most classes. They still may make good grades but may struggle in some subjects. Some may complain about how they are finding it difficult to grasp concepts and the teacher just can't make things easier for any of them. These may not be far from the Philippine experience. While some students in other parts of the world does not have to worry about a smart phone, a laptop or internet connection, students and their teachers face the same long-term challenges that remote or distance online learning presents.

A recent survey by the RAND Corporation (a nonprofit research company in the United States) has come up with the following findings:

1. Learning has been slower for fully remote/ hybrid classes compared to in-person. This is because students fail to show up and/or fail to complete schoolwork. When students are not learning or performing in the pace expected, lessons would tend to go slower, and teachers need to put in more effort to get the students interested.
2. There are students that are more likely to fall behind than others. The study found that schools that have students who qualified for free, had reduced-price lunch, and schools that had more students that were of color were more likely to offer remote learning than in-person learning. In turn, these students are less likely to have access to a laptop or a computer and internet services. There are also students who may be severely disabled and may experience poverty or homelessness – and online teachers are not equipped to handle them. (Schwartz, 2020)

We have to understand that most teachers were not really trained to teach online. They need support on how to adapt curriculum, how to motivate students, how to push them to excel academically, as well as how to assess if they are indeed learning. Most of all, we have to understand that in the face of the pandemic, teachers are also worried about their own health and their loved ones.

As time goes on, and with not seeing the end of the pandemic soon, we come face to face with the challenges of distance online learning. Guisinger (2020) stated in his article “Distance learning is a challenge because teaching and learning are complex. We all sense this, but the devil is in the details.”

The purpose of this study is to create awareness on the trends and challenges we are facing as virtual teachers of K-12 students. Much of what we – teachers, students, as well as parents - are going through are practically new to us. While we are learning a lot, we are also making mistakes along the way.

This study also aims to come up with solutions on how to make our new processes work for us and our students in the face of our limitations. That while it is difficult, we believe that we can make virtual learning work for our students.

## Methodology

The researchers used the quantitative descriptive research design to address the purpose of the study. The study aimed to provide trends and on-going challenges teachers engaged in distance online teaching were experiencing and what can be done about it.

Convenience sampling was used in this study. Twenty-seven participants (n=27) from Baguio Patriotic High School, a Filipino-Chinese private school, were asked to participate in this study. The 27 participants consisted of 11 males (n=11) and 16 females (n=16). Their ages ranges from 20 to more than fifty years old. Their number of years in teaching ranges from less than three years to more than twenty years. All of them finished Bachelor's Degree and two are Master's Degree holder. All of the participants were teaching in different grade levels and handled different subjects, from Pre-Kindergarten to Grade 12. Eighteen participants spent less than 10 hours per week in actual online teaching, eight spent 11-20 hours and only one participant spent more than 40 hours.

The instrument that was used for gathering data was a printed survey questionnaire. This study adapted the Survey on online and distance learning. This instrument was developed by School Education Gateway (2020). The questionnaire used was divided into two sections: (1) Background Information and (2) Opinions and Experiences in Distant Online Learning/Teaching. The background information section asked about the participant's personal information (name, age, gender, highest educational attainment, number of years in teaching in the current school, grade level, subject taught and number of hours spent weekly in actual online teaching). The second section consisted of six questions with multiple choices (except number 6 where they provide own answer):

1. Thinking of your school, which statement best describe teacher's experience with online distance learning?
2. As a teacher, what have you pleasantly experienced about online/distance learning?
3. In your opinion, what have been the main challenges for teachers in switching to online/distance learning? Choose up to five options.
4. What would most help teachers to support online learning? Choose up to three options.
5. In your opinion, due to the current circumstances created by the COVID 19 virus, when schools fully reopen, will online/distance teaching remain part of school practice?
6. In your opinion, how can your school support further in online teaching?

Letters of permission were sent out to the school principal and participants regarding the data gathering for this research. The data gathering was conducted for two days, August 24-25, 2021. The questionnaires were retrieved August 26, 2021 by one of the researchers with the help of the school principal.

## Findings and Discussion

These are the survey results gathered from the participants.

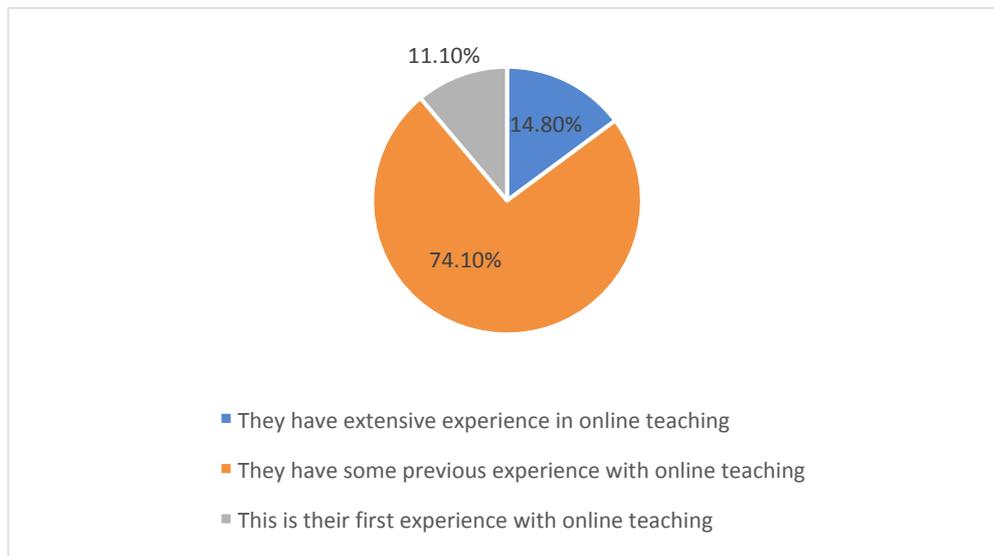


Figure 1: Teachers' Online Teaching Experience.

Figure 1 shows the results of which statement best describes teacher’s experience with online teaching. The findings show that 74.10% or majority have some previous experience with online teaching. According to the Department of Education, private schools were allowed to start earlier than public schools provided that they are strictly using only distance learning modalities and there are no face-to-face classes. In June 2020, on the height of the COVID-19 pandemic, DepEd issued a “non-negotiable requirement” to private schools and among the “non-negotiable” requirements prescribed for private schools are setting up own email domains and educational platforms. In addition to this, both teachers and learners should have the necessary resources to access the lesson. While most public schools in the Philippines were preparing for modular distance learning, private schools started online distance learning.

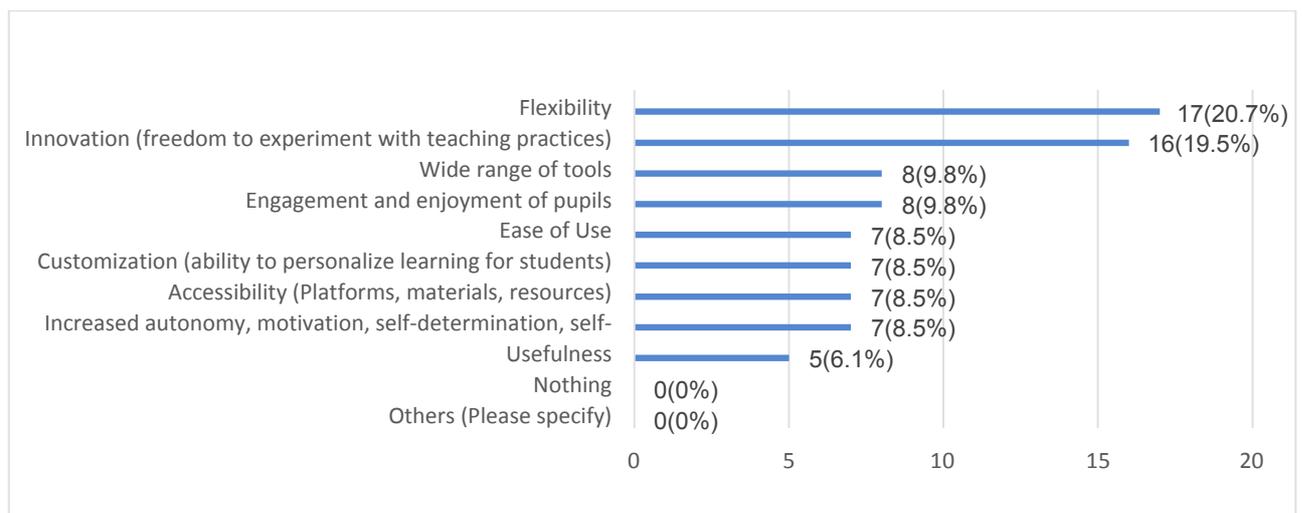


Figure 2: Pleasant Experience on Online Distance Teaching

Figure 2 demonstrates results on pleasant experience of participants with online distance teaching. Findings show that most of the participants experienced flexibility and innovation (i.e. freedom to experiment with teaching practice) with 20.7% and 19.5% respectively. The new normal in education compels educators not just to come up with new ways of doing things but also new ways of thinking. Teachers can design their own context and delivery according to the needs and context of their learners. Research has indicated that teachers are most likely to be satisfied when they are provided with flexibility in what, how, when, and where they teach (Archambault & Crippen, 2009; Bolliger & Wasilik, 2009; Hawkins et al., 2012; Kozma et al., 1998; Murphy & Rodríguez-Manzanares, 2008; Smith, 2000; Velasquez, Graham, & Osguthorpe, 2013, as cited in Borup & Stevens, 2016).

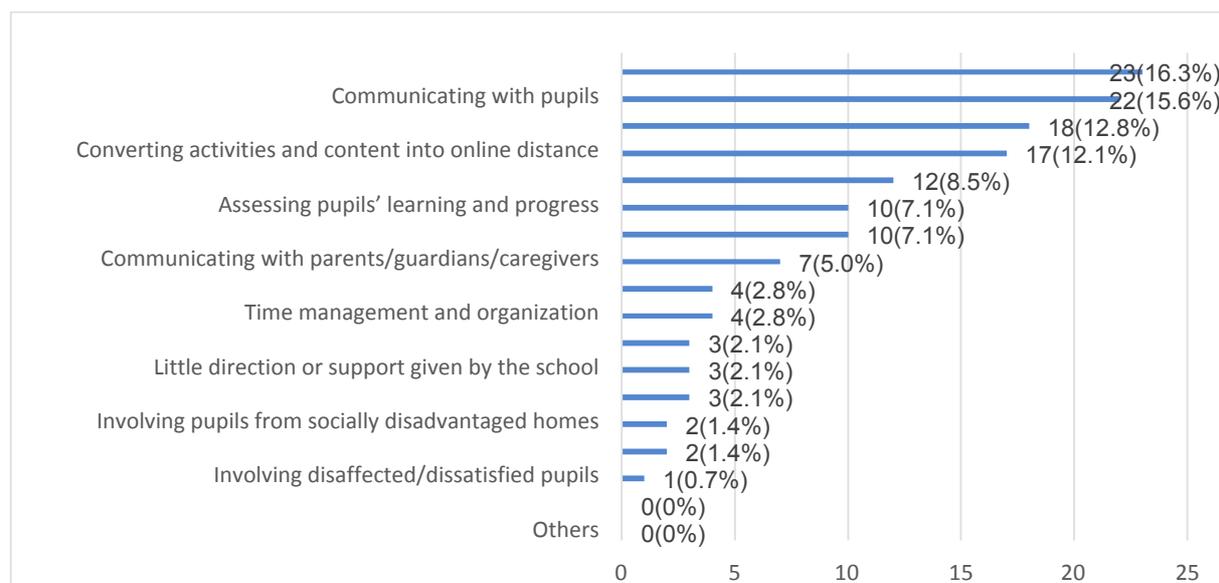


Figure 3: The Main Challenge for Teachers to Switch to Online/Distance Learning

With years of experience in traditional instruction and face-to-face classroom setting, changes at this rapid pace can be confusing even to the most experienced teacher. On Figure 3, participants were given to choose their top 5 main challenges for switching to online or distance learning. The most popular response or 16.3% of the participants have had difficulties in keeping all the pupils motivated, followed by 15.5% who also experience difficulties communicating with pupils. In a research conducted by Abramenska (2015), student motivations towards online learning are enhanced with clear organization, communication, interaction and presence of the instructor. Students should be able to contribute various perspectives and thoughts in an online setting, and in turn receive critique (Abramenska, 2015). The 21st century world is becoming increasingly digitized which is another reason why it is important for academics to be more aware of the specifics of their cohorts and learners and find ways to engage with and support isolated learners (Gillet-Swan, 2017). The third on the list is teacher's access to technology with 12.8% of the participants and 12.1% find it challenging to convert activities and content in to online distance learning.

In an article by Beltran (2021) a teacher told Nikkei Asia "I start and end my day staring at a laptop". EDUCAUSE notes that teachers use digital technologies in their personal lives, but that, when applied in classrooms, they encounter serious technical, logistical, and pedagogical problems (Johnson et al, 2016 cited by Mercader & Gairin, 2020). While most teachers are still learning how to use different online learning platforms, there are also those struggling with poor internet connection and lack of gadgets/computers. The fifth main

challenge for teachers is their student's access to technology. Most students do not have the appropriate connectivity, device and digital skills required to find and use educational content dependent on technology. According to UN, nearly 500 million students from pre-primary to upper secondary school did not have any access to any remote learning—three quarters of those lived in the poorest household or rural areas. This enormous digital divide shows how connectivity has become a key factor to guarantee the right to education (UNESCO, 2021).

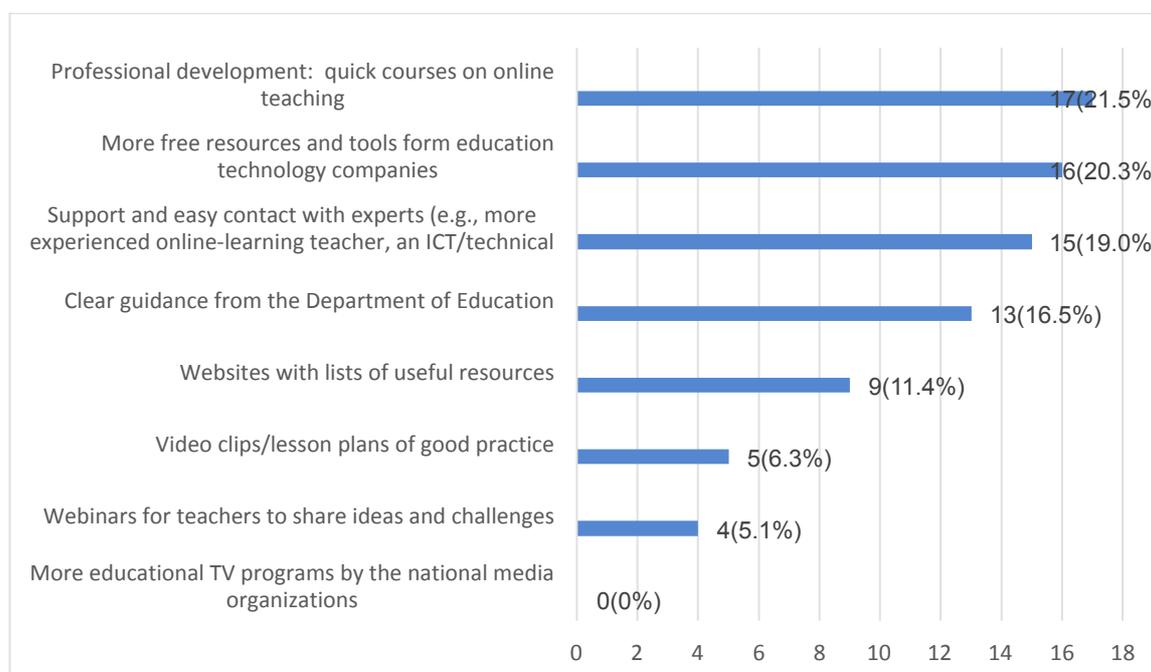


Figure 4: Ways to Help Teacher's Support Online Learning

Figure 4 demonstrates the results of the most helpful support to teachers on online learning. The top 3 support that teachers need in online learning are professional development with 21.5%, more free resources and tools from education technology companies with 20.3% and support and easy contact with experts with 19%. In a study by Simon (2015), many participants reported having given thoughts to ways in which they could improve their online courses. However, many of these ideas were tied to technology, and were systematically rejected due to time constraints, lack of technological knowledge, lack of available and usable technologies, perceived lack of support, and doubts about resulting educational benefits. In the absence of incentive to experiment with new technologies, exemplary practices and active support, teachers are not likely to take the risk to incorporate new technologies or pedagogies in their online courses. They are more likely to stick to familiar practices, even when these practices are not fully satisfactory (Simon, 2015). While the problem of teachers' indifference and resistance to technology is common, providing support through all of these can hopefully change their mindset. Acquiring the necessary skill is equally important as having the technology to provide online learning.

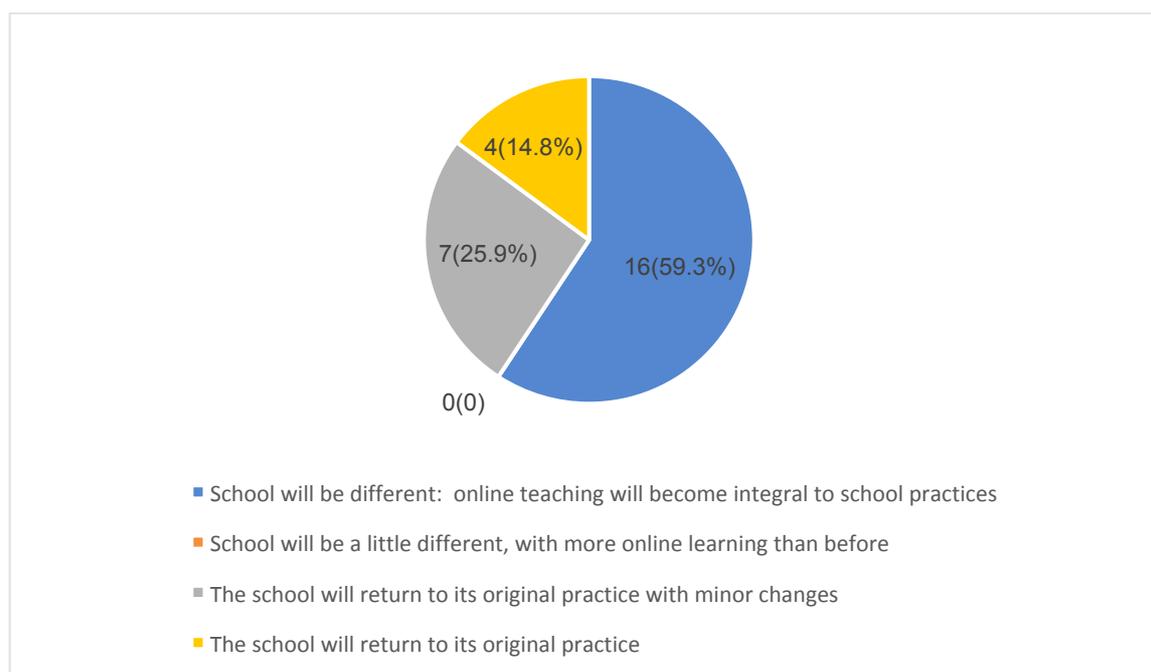


Figure 5: Trends in Online/Distance Teaching When Schools Are Completely Reopened

Figure 5 shows the results on trends in online/distance teaching when schools are completely reopened. Results show that most of the participants or 59.3% have selected “School will be different: online teaching will become integral to school practices”. Those who are in the education sector know that online learning is here to stay and thus the school has a very big responsibility to shape its teachers and learners into that direction. Thus in the last part of the survey the participants wrote the following on how the school can support them further in online teaching: (1) Education with incentives/trainings and seminars; (2) technical software support; (3) lessen video lesson recordings/digitized video recordings; and (4) provide digitized learning material, equipment/facilities including fast internet connection.

## Conclusion

More than a year later since the start of the COVID 19 pandemic, Philippine schools continue to tackle challenges in ensuring that quality instruction be delivered safely to students at home. However, quality instruction has already been out of reach for many students long before the pandemic. While many Filipinos see education as a way out of poverty, the national government since the 1990s has given dwindling allocation to it, compared to budgets for Public Works and Highways or Transportation or National Defense. The pandemic has not only disrupted the delivery of quality education, but it has also magnified the issues that have been plaguing it for a long time.

When teachers and students struggled with the lack of books, classrooms and other learning tools, the onset of the pandemic has forced the Philippine educational system to go online at a purely untested and unprecedented scale. Of course, online distance learning is the safest possible solution to continue learning. On an economic level, it could be a godsend as it would reduce spending on daily commutes, packed snacks and lunches, and test papers. Students and teachers do not have to get up early to catch jeepneys or buses to go to school. You can actually “go to school” without taking a bath or getting into a uniform. This takes into aside, of course, the main purpose of reducing contact to save the lives of teachers and students. From an administrative point of view, this could also be a good opportunity to

implement innovative technology solutions such as *High Touch, High Tech* or the use of artificial intelligence to improve learning.

However, the implementation of the online distance learning solution has raised a lot of issues with regards to access to technology, reliability of internet access, consistent computer access, and ensuring regular online participation of students, on one hand. And on the other hand, we have teachers who are also struggling with the transition to remote learning with inadequate technological training and preparedness to handle teaching online. Because standing in front of the phone or laptop camera and broadcasting is not teaching. As our teachers “painfully” find out, we have to do things differently.

So, should we go back to traditional face-to-face education once the pandemic is over?  
Not so fast.

Even before the pandemic, there have already been plans to prioritize spending of the education budget largely on technology-based solutions – to make our students globally competitive. The onset of the pandemic only accelerated our need to transition to a model of education that brings together the best of both traditional offline learning and e-learning – not only here in the Philippines but in the entire world. This global pandemic is far from over, so it is incumbent upon us to continue learning and innovating to minimize the despair and disruption it has caused on our children’s education. The government should continue to support and fund technology-based learning solutions like online distance learning. Teachers should be given continuous training on online engagement and troubleshooting. Access to the internet should be made as universal as access to water and electricity. Education has never been more important as these times when knowledge of facts and science can save your life and your loved ones. Focusing on improving the access and methods for online distance learning could be the key to increased global competitiveness of our children.

Shakespeare once said, “There is no darkness, only ignorance”, online distance learning may just be our light out of this long tunnel.

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## ***The Development and Evaluation of an Online Educational Game Integrated with Gather Town for Nursing Staff Learning***

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The Asian Conference on Education 2021  
Official Conference Proceedings

### **Abstract**

Many on-the-job training courses for nursing education have been converted to online courses due to the COVID-19 pandemic. However, emergency and intensive training courses emphasize the provision of real situations to promote learners' abilities in making accurate observations and instant judgments based on patients' situations. In this research, an online educational simulation game called *Emergency Room*, which uses the Gather Town platform and Google Jam board application to build virtual emergency room scenes and integrate patient complaints of differing severity, was developed. This game enables learners to establish how to evaluate the consciousness and muscle strength of critically ill patients and establish cognitive scaffolding and peer scaffolding to improve the consistency of evaluation, providing a contextual and real learning environment. By providing a description of the patient's condition in a simulated emergency room, the correctness and consistency of assessment of consciousness and muscle strength according to the patient's condition are expected to improve by playing the game. The trainees were also required to identify the principle of urgent admission based on the main complaint and clinical evaluation of each patient, especially with regards to their consciousness and muscle strength. After preliminary analysis of the empirical evidence, it was found that the learning effectiveness of the trainees was significantly improved. The flow state and technical acceptance of all learners were also analyzed, and the results showed that the overall flow and game acceptance were both higher than the median (median of the five-point scale = 3). Most of the learners also reported that using the game was more helpful for attaining problem-solving skills than not using the game.

Keywords: Simulated Learning, Online Educational Games, Level of Consciousness, Muscle Strength, Physical Assessment

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## Introduction

When the 2020 COVID-19 pandemic spread globally, more than 1.6 billion students were affected by the pandemic. Since the pandemic is a highly contagious virus, it is difficult to provide physical learning places due to the risk of infection and spreading the infection to faculty, staff, and students (Baran & Correia, 2014). Reducing clinical courses had a significant impact on medical education, especially for medical students who wish to acquire certain structured abilities and skills before starting their careers (Ferrel & Ryan, 2020). Educational structure changed in many educational institutions due to COVID-19 pandemic (Hussein et al., 2020). Medical students need to acquire certain abilities through learning and participating in clinical and non-clinical activities. By using different communication and education technologies, learners can learn with anyone anytime, anywhere, thereby expanding, and accelerating learning (McClure & Williams, 2021); however, compared with physical courses, an important problem is the lack of social interaction between learners on the online learning platforms.

Our game research aims to explore how the online educational game integrated with Gather Town promotes the effectiveness of remote simulation in clinical nursing education. The online educational game integrated with Gather Town used in this study emphasizes situated learning, cognitive scaffolding, peer scaffolding, and game design elements such as virtual peer interaction, medical scenarios, and clinical simulation in teaching activities. Situational learning refers to that learning should be carried out in the context of the application of the knowledge learned (Lave & Wenger, 1991). Scaffolding theory refers to providing support and guidance to improve students' learning ability when learning content or skills (Wood et al., 1976). Vygotsky (1978) pointed out that learners can expand their "independent processing capabilities" with the help of peers of capable people. Online games use medical scenarios may enhance peer collaboration to assess the patient's coma scale and muscle strength, and then simulate clinical handovers. The research purposes of this study are to develop an online educational game integrated with Gather Town as well as explore learners' learning performance, flow state, game acceptance, and game anxiety of online educational game integrated with Gather Town.



Figure. 1 The Game *Emergency Room*



Figure. 2 Peer Scaffolding of the Game



Figure 3 Cognitive Scaffolding of the Game

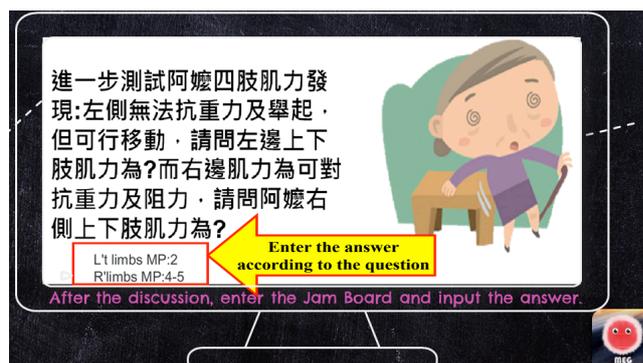


Figure 4 Learners Evaluate the Patients

## Methods

The online educational game *Emergency Room* developed with Gather Town was designed based on situated learning (Figure 1). After completing the pre-test questions, the assistant will guide the nursing staff to play the game and enter the *Emergency Room*. Learners in this study consisted of 12 nurses, divided into four groups to play games at different times. Each participant uses a personal computer and microphone to communicate with others in Gather Town through completing the learning activity. They must find three patients in the *Emergency Room* who need to evaluate GCS and MP of the cases, and write down the scores in a Google Jam board. In this process, learners have to apply professional knowledge and clinical experience to discuss with each other to form a peer scaffolding (Figure 2), and also can read reference books in Gather town as cognitive scaffolding. Learners evaluate three patients' status to finish the tasks according to the patients' description (shown as Figure 3). Once learners complete the evaluation, they need to fill in the answers in a Jam board (Figure 4), and the head nurse would reveal if they provide the appropriate evaluation of three patients.

To be able to analyze academic performance, the content of the pre-test and post-test are the same. There are 4 questions in the exam. The four clinical head nurses of a medical center in Taipei reviewed the questions for expert validity.

This study used Kiili (2006)'s Flow Scale to assess the flow state of learners, which was translated and revised by Hou and Li (2014). The flow state includes two dimensions of flow antecedents and flow experience, and all scales are measured using the Likert five-point scale (1-5 points). The reliability measurement (Cronbach's alpha = 0.931) shows a high degree of internal consistency. Regarding the acceptance, the study adapted and revised Davis's (1989) The Technology Acceptance Model items. There are 8 items including usefulness, ease of use, and game elements. The program of learning activities includes pre-test (10 minutes), game (30 minutes), post-test (10 minutes), and finally the questionnaire (10 minutes).

## Results and Discussion

In terms of academic performance, the Table 1 shows the result of the Wilcoxon signed rank test that students' performance has improved after playing online emergency room games ( $Z=-2.075$ ,  $p<.001$ ). By completing the game, the overall performance of the learner has been improved. In terms of flow, based on the result of one simple t test, the overall flow status ( $M = 3.73$ ,  $t=7.205$ ,  $p<0.001$ ), the sub-dimension flow antecedent dimension ( $M = 3.54$ ,  $t=3.57$ ,  $p<0.01$ ) and the sub-dimension flow experience ( $M = 3.93$ ,  $t=5.49$ ,  $p<0.001$ ) are all significantly ( $p<0.05$ ) higher than the median value (median fifth ratio = 3) (See Table 2). The

results show that learners are deeply involved in the game. In addition, and the result revealed that usefulness ( $M=4.15$ ,  $t=5.55$ ,  $p<0.001$ ), ease of use ( $M=3.8$ ,  $t=2.99$ ,  $p<0.05$ ), and game elements ( $M=4.02$ ,  $t=4.79$ ,  $p<0.01$ ), were also significantly ( $p<0.05$ ) higher than the median (the median in a five-point scale =3)(see **Table 3**), which indicates that the game operation process is simple, and easy for nursing staff to use.

Table 1 Mean and Standard Deviation of Learning Performance Pre- and Post-Test.

	M	SD	Z	Sig.
Pre-test	3.97	1.82		
Post-test	5.24	1.75		0.038**

\*\*  $P < 0.01$

Table 2 Means and Standard Deviations of Flow State Scores.

Dimensions	M	SD	t
Flow antecedents	3.54	0.53	3.57**
challenge	3.83	0.62	4.69**
goal	3.70	0.62	3.95*
feedback	3.25	0.54	1.59
self-control	3.54	0.94	1.99
playability	3.38	0.71	1.82
Flow experience	3.93	0.59	5.49***
concentration	4.27	0.63	-.24
time distortion	4.21	0.84	4.99***
Autotelic experience	4.31	0.67	6.81***
loss of self-consciousness	2.92	1.20	6.93***
Overall flow	3.73	0.49	5.21***

\*  $p<.05$  \*\*  $p<.01$  \*\*\*  $p<.001$

Table 3 Means and Standard Deviations of Game Acceptance Scores.

Dimensions	M	SD	t
usefulness	4.15	0.72	5.55***
ease of use	3.8	0.90	2.99*
Game elements	4.02	0.74	4.79**

\*  $p<.05$  \*\*  $p<.01$  \*\*\*  $p<.001$

## Conclusions

In this research, an online educational game, "*Emergency Room*", which combined the chief complaint of patients with simulation emergency 'Gather Town' environment was developed. The aim of this research enhanced the contextual learning experience of nurses considering the restrictions caused by the COVID-19 pandemic. The results showed that the game helped nurses to improve their evaluation skills, and increased their knowledge and ability to assess patient limb and muscle strength. These preliminary findings indicated that combined online educational games with a mechanism by simulate real situations can effectively improve the learning of nursing staff. The results of flow analysis also showed the high level of engagement with the game reported by all the nurses who participated in the study. Also, the game was easy for learners to play. Future research could conduct a quasi-experimental design to compare the

effectiveness of participants in the game with that a control group (who undertake, for example, general online courses), and to further explore the assessment capabilities, emergency response ability, and online learning motivation of nursing staff.

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***Challenges of Lesson Plan on Data and Chance with an Intervention of Video Analysis:  
Preservice Secondary Mathematics Teachers***

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**Abstract**

The study aimed to investigate the effects of scaffolding on preservice secondary mathematics teachers' (PSMTs') lesson plans. A series of well-organized activities were conducted, which included design, peer discussion, video analysis, microteaching, and revision. The theme was on data and chance. Video analysis aimed to bring new comprehension of effective teaching for PSMTs. Semi-structured interviews were conducted with four PSMTs to collect data. Findings showed that PSMTs faced lesson planning challenges because of a lack of content knowledge and pedagogical content knowledge in data and chance. As for the lesson plan before video analysis, the challenges included predicting students' behavior and estimating the time needed in teaching. After video analysis, they showed their efforts to pursue effective teaching when reflecting and revising their lesson plans. The findings suggested that video analysis benefits PSMTs' awareness of some features of effective teaching. Yet, more scaffolding is needed in supporting their noticing, reasoning, and the pursuit of interactive teaching involving the design of activities.

Keywords: Preservice Teachers, Lesson Plan, Video Analysis, Effective Teaching

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## Introduction

Ball, Thames, and Phelps (2008) proposed the importance of pedagogical content knowledge, which is knowledge of content and students as well as knowledge of content and teaching. Video analysis is a pedagogical tool to support teachers in noticing and reflection, which may benefit the development of CK and PCK (Karsenty & Arcavi, 2017; Star & Strickland, 2008). Our study is interested in employing video analysis to support preservice secondary mathematics teachers (PSMTs) in lesson planning. Additionally, peer evaluation benefits reflection in teacher preparation and thus improves the quality of the lesson plan (Etscheidt, Curran, & Sawyer, 2012; Ozogul, Olina, & Sullivan, 2008). Therefore, we anticipate PSMTs may benefit from both video analysis and peer evaluation.

Referred to literature, PSMTs faced at least three kinds of challenges in statistics teaching: lack of content knowledge, lack of pedagogical content knowledge, and lack of confidence in statistics teaching with and without technology use (Lovett & Lee, 2017). Task analysis, modification, and design are paramount in mathematics teacher training. PSMTs may find more challenges in task modification and design than in task analysis (Lim, Song, & Kim, 2018). Similarly, PSMTs may encounter many challenges of lesson plans, including task modification and design on data and chance. Considering the effects of video analysis and peer evaluation on lesson plans, we investigated PSMTs' challenges of lesson plans on data and chance before and after peer evaluation and video analysis. Therefore, we will explore the following research questions:

1. What challenges do preservice secondary mathematics teachers (PSMTs) encounter in designing a lesson plan on data and chance?
2. What challenges do preservice secondary mathematics teachers (PSMTs) encounter in peer evaluation?
3. What challenges do preservice secondary mathematics teachers (PSMTs) encounter in video analysis?

## Method

Twenty-nine PSMTs enrolled in a teaching methods course at a university located in the capital city of Taiwan. The course had two contact hours per week over 18 weeks. The objectives of the course were understanding the curriculum, analyzing textbooks, and designing lessons. The practice of the lesson plan lasted for three weeks. In the first week, PSMTs set learning objectives and transformed their CK and PCK into a 20-minute lesson plan on statistics. After that, they did peer evaluation, which aimed to facilitate reflection and assessment of effective teaching. In the second week, PSMTs worked in small groups on video analysis to bring new comprehension of effective teaching practice. After that, PSMTs did a whole group class discussion on what they noticed and reflected. In the third week, PSMTs did micro-teaching and lesson revision with other PSMTs of the same small group. A semi-structured interview was conducted with four selected PSTs on their challenges and gains when planning and revising lessons one week later. The interview lasted about 40 minutes for one PSMT. These four PSMTs' lesson plans and responses to the interview tasks constituted the study's data sources.

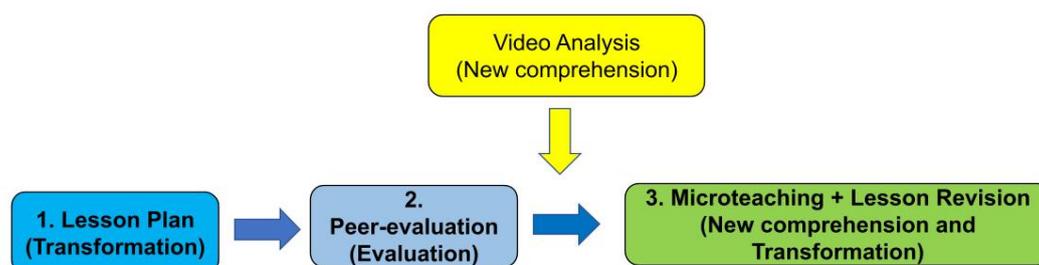


Figure 1: A Framework of Using Video Analysis to Prepare Psmts for Lesson Plan

## Results

PSMTs encountered different kinds of challenges in various activities. The main challenge in the lesson plan is transforming the knowledge of content, students, and teaching for predicting students' responses and estimating reasonable teaching time. In peer evaluation, PSTs encountered challenges in proposing critical feedback for each other's lesson plan because of not knowing the features of good teaching. In video analysis, PSMTs displayed weakness in CK and PCK, which may diminish the influence of video analysis on lesson plans and revision. In lesson revision and micro-teaching, PSMTs felt it challenging to integrate the learning of video analysis and peer evaluation into lesson revision. It may be due to a lack of understanding of students' cognition in data and chance and the desire or capability to pursue interactive teaching.

On the other hand, PSMTs learned a lesson on effective teaching from different activities. Two of the four PSTMs used information and communication technology (ICT) to teach more effectively from the lesson plan. PSTMs evaluated the feasibility of their peer's lesson plans and reflected on their teaching from peer evaluation. From video analysis, PSTMs viewed activity-based learning as an efficient entry to develop concepts and noticed some features of effective teaching, such as teacher-student interaction. As a result, two of the four PSMTs revised their lesson plans for more effective teaching. In sum, peer evaluation and video analysis encouraged PSMTs to critically reflect on their lesson plans and recognize some features of effective teaching.

## Conclusion and Suggestion

The investigation explored PSMTs' challenges in the lesson plan and found PSMTs' lack of confidence in predicting students' behavior. Though analyzing video analysis brought new comprehension of effective teaching, it didn't push all the PSMTs to revise their lesson plans or guarantee the success of the new transformation. The result may be due to PSMTs' overstress on time efficiency and lack of motivation to pursue interactive teaching. Thus, PSMT may need more scaffolding in noticing and reflecting on the features of interactive teaching (Lee, Lee, & Park, 2019), which may bring about a new transformation in the pursuit of effective instruction.

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***Curriculum Development in Industrial Design Education in transition: Challenges and issues in a Thai university***

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**Abstract**

In Thailand, it is widely accepted that development in education is lagging behind the progress of the economy and industries. During the 2018 Transition Discussion in KMUTT, Industrial Design (ID) education received a call to reconsider reforming the traditional teaching style. Discussion among international scholars from the field formed the direction of ID curriculum development study. Interviews of design experts from Japan, Singapore, and Thailand, including parents, and students revealed that the present traditional teaching style, where students only complete the tasks assigned by lecturers, is no longer effective and that a holistic view of practice should be implemented. Therefore, the focus of education should not be to produce graduates who serve a single job but to prepare universal persons who can learn new things. It is very challenging for educators in the design field to pioneer a novel course for design education. This study presents three challenging issues. First, Content-Based Learning: integrated content-based learning would replace subject-based learning. Next, Competency Development Visualization: taking on different roles would help students to visually realize the competency development of their peers. Then they can reflect on their development. Finally, Opportunity Provider: the perception of instructors is paramount. Moreover, their role would not be exclusive to teaching and facilitating, but they would systematically study the students' development then classify and provide opportunities to improve their competency. In this scenario, the knowledge ceiling of courses must be varied and dynamic.

Keywords: Curriculum Development, Design Education, Experiential Learning, Soft Skills Development

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## Introduction

### Students' and Parents' Perception has Changed

It is widely known that technology has had a big impact on education. Specifically in higher education, the source of knowledge is no longer coming from lecturers in the universities. Many students are able to access a variety of academic resources. Technology evolution allows students to be able to learn from whomever they want to learn from; students can easily access knowledge anywhere at any time. Many students report that if they do not understand the lesson in the classroom, they just search another lecturer's lectures from the internet. VDO clips, PowerPoint presentations, and lecturer notes are always available. They just select what they would like to study.

In February 2018, the expert review was conducted as a part of The First International Conference on Design, Innovation, and Creativity in the Environment of Innovation District Bangkok at Knowledge Exchange Building, KMUTT. The discussion among the lecturers of design schools from Japan, India, Singapore, and Thailand suggested that the students' perception towards education has changed. They have realized that knowledge and information imparted by lecturers in front of the classroom can be found elsewhere. Moreover, there are instances that they can even find better explanation from other resources. Some senior students mentioned that they think that they can get a better grasp of some information when they do internship at the company. Relying exclusively on the lecturer or setup project in the classroom cannot make them clearly understand some concepts. The discussion also suggested that soft skills and ability to learn new things would be important for the new generation of students who can access knowledge resources. This is echoed in an article published by Skills Future where they listed the new Critical Core Skills (CCS) with an increased emphasis on soft skills as part of the future work in the digital era. These are thinking critically, interacting with others, and staying relevant (Skills Future, 2021).

Referring to these observations, parent and student interviews were selected as data collection tool to understand their perception of the changes in higher education. Ten parents and 15 students were systematically selected. Parents who are interested in education development and involved in today's industry movement were considered as the right person to present their vision of future education. The parent's expectation plays the role of both influencing and encouraging students to choose their education path, while students' experiences and goals shape a different criteria from parent's one to decide their study plan. Fifteen students graduated from Thai schools, an international school in Thailand, and schools from other countries, such as Canada, New Zealand, and Japan. An unstructured interview was conducted for these groups of samples to encourage open-ended conversation. Interview issues covered studying and working style, life-long learning, and career path development. Parents and students were encouraged to present their opinion toward the future context rather than today's context. All of them agreed that the classroom is not suitable for today's generation of students because the classroom approach does not encourage interaction and high involvement activities. These activities, such as workshops, group discussions, or internships, are more powerful to push students and lecturers to have more interactions. The interactive activities lead the students to share their opinion and also challenge both lecturers and other students to continue their ideas and opinions onward. One student from a school in Canada felt that he was more comfortable presenting his ideas when he studied there than in Thailand. He also expressed that the classroom environment creates the sense of one-man show with the teacher or lecturer standing in front of the classroom; therefore, students feel

that their task is to listen to the person in front of the classroom while workshop or group work seems to invite all participants to share their opinions.

Many parents reflected that people cannot be successful if they depend on just a single discipline for their job. One parent suggested that undergraduate schools should give wider opportunities to students to develop their career paths in the future. Soft skill development is the key success factor for students to learn and work in the inter-disciplinary environment. In the words of Nobel Prize winner James Heckman: "Soft skills predict the success in life (Hyder, 2020)." Parents who have successful careers in the technology industry reflected that whatever students learn in the university will be outdated very soon. Students need good fundamentals to ensure that they are able to learn new things every day. This opinion supports the suggestion from many students. Students mentioned that much of the knowledge they studied in high school is already out of date compared to the knowledge they found from the online platform. A student reported that she spent two months as an intern at one of the research units in Bangkok and felt that she can see the much bigger view of what she was interested in. This experience impacted her study point of view. She realized that she needs to learn more than what she already studied at school. The classroom makes her stop learning when she finished the final examination but working in the professional environment makes her study until the last minute to complete an assigned work. Indeed, education is a life-long process that starts with birth and ends with death.

### **To Develop Ability to Learn New Things**

The interview of parents and students who are interested in education development and have actively considered their study plan shows that knowledge is now all around. Students can easily access the knowledge from a wide variety of quality resources. Technology evolution has allowed people to connect to each other. Students have more choices to learn from the resources they prefer. The lecturers standing in front of the classroom are not the only source of knowledge. Therefore, the perception of students as to the role of university has changed. Instead of providing knowledge, universities should encourage students to access knowledge resources elsewhere. Students should also be encouraged to work with many kinds of people in the business or industry. The analysis shows that the role of the classroom would be transformed into discussion sessions where students, lecturers, and guest experts share their experience of learning.

Another future scenario is the colony development may eliminate many careers and tasks. It means that the knowledge and skill of some professions have to be developed or changed. For example, in industrial design, freehand drawing skill is not important for the presentation because computer rendering is more efficient in the task aspect. However, it is still very important for communication, especially to communicate new ideas. Thinking framework would be considered an important issue for design schools. Many design and innovation firms have suggested that, in the future, the boundary of the profession might disappear. People cannot work in a linear process anymore. Everyone would carry out the work from the start to completion. Designers do not just take care of design while engineers are responsible only for the engineering part. Everyone is a part of the interdisciplinary team. This is especially true in the innovation area where technology has been rapidly and continuously developed, so the team has to deal with the issues. Schools cannot teach all of this knowledge. In this case, it would be nice if schools can train students to be able to learn new things whenever they need. The role of lecturers, in this case, has to change from providing very specific and singular knowledge to enhancing the ability to learn new things for

students. In this scenario, the knowledge ceiling is not limited to the lecturer but the various ceiling of knowledge from outside the classroom are counted as a collective source. This approach also encourages sustainable life-long learning ability of students.

## **Discussion**

### **Soft Skills Development**

Basically, university has focused to develop hard skill. However, the technology development allows all people, especially students to access unlimited knowledge resource. The public review and open resource system play the major role to screen and correct the information and knowledge. Many universities, institutions and also private sectors have provided their resources and learning material to the public through online platform. The number of both free and subscribed online classes are rapidly enhanced. As a result, many students decide to ignore classroom in the university and pay attention to anywhere/anytime contents. Many lecturers have adapted their teaching method to fit to the situation and students' study style. However, the working process in the business and industry has been developed as well. Hard skill and knowledge are easier to be accessed. Adult education and non-degree programs give more opportunity to the people who would like to continue their education and also who would like to gain more knowledge and skill set for their career growth. Many parents showed very significant point of training in the university. Knowledge and hard skills are not as important as before. In fact, Hyder claims that near-future employment entirely relies on soft skills and hard skills are comparatively being blue-penciled off daily (2020). Soft skill would be much more important for students to be able to explore their career in the future. The communication skill is needed to be trained in the university. Thinking framework may be needed for students understand the changes and work with other people in the complex situation. Ability to learn the new things is a significant qualification of people who work in the creative industries.

Universities, therefore, should turn to focus developing students' soft skill. Thinking frameworks such as critical thinking and logical thinking can support students to explore and practice the right knowledge and hard skill in the online world. Soft skills development still needs to be trained by person. Online program can help and support soft skill development in some way but it would be efficient to be trained in person. Higher education should provide platform for students to be able to explore the world as much as possible. The set up project and situation that lecturers and students usually deal with in the part may not create the sense of learning because today they are all able to study the real case situation real-time. The opinion and knowledge given by the lecturer is not the absolute truth anymore. The cooperation with business and industries and real project would be brought to the workshop or working environment. Students would be challenged to work with other people outside the university. They can learn from working in the professional environment and also facilities. This can make students realize the result of what they have learnt. To practice and develop desirable soft skills is helped when students have the opportunity to work in real-time-real-world situational contexts and working in internships and other experiential practices helps reduce this type of gap (MacDermott & Ortiz, 2017). This current scenario shows that universities could create a high involvement learning environment. It changes the learning and teaching approaches. Soft skills would be trained during their cooperation and working process. In the working situation, students should be able to realize what knowledge and skill set they lack. Interestingly, this coincides with the report of a 2015 Hart Research survey of 613 college students, where 74% of the students indicated that their higher education

institution had done an effective job preparing them to have the soft skills necessary for workplace success. It is only after entering the workforce that they recognize the importance of acquiring these critical soft skills and once in the workforce, they may find their organization offering minimal or no training for developing these soft skills (Martin). This is the moment that they can actually realize what they should learn more by themselves. It is different from when they study in the classroom where lecturer gives the knowledge first without assessing the students' needs.

### **Experiential Learning Platform**

The analysis also recommends that students should have a chance to work in a real situation before graduation. Internship usually provides 1-6 months for students to work in the industries before graduation. Experiential learning platform (ELP) is the platform grounded from this study. It is the cooperation platform that universities and industries have worked together to encourage students to have working experience parallel in study time. Instead of dealing with the set up project in the classroom, students in ELP would get the opportunity to improve their soft skills, communication, thinking skills, etc. Then they are strongly encouraged to learn by working in the professional environment.

### **Conclusion**

To recap, the market scenario is changing very fast and this calls for educational institutions to quickly adapt to the times. Before, students who had a brilliant academic record with added work experience were well sought after by most of the corporate institutions. But today hard skills and experience are not sufficient for the ingress and escalation in the corporate world. Employers prefer to hire and promote those persons who are resourceful, ethical, and self-directed with good communication/ soft skills. The data from the interview supports this and strongly recommends that the ability to learn new things is crucial for the future scenario. Moreover, the rapid development in technology made students realize that knowledge is constantly updated and replaced with new ones. This calls for a change in the classroom dynamics where lecturers should encourage active involvement through workshops or internships instead of relying solely on traditional lectures. Universities should provide opportunities to improve the now vital soft skills and this is where ELP's would be effective. This paper then hopes to encourage lecturers and educational institutions to re-evaluate their practices and incorporate the suggestions earlier made.

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