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Ružica Jurčević, University of Zagreb, Croatia

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Abstract
The prevailing economic ideologies that entered the European higher education in the last few decades disrupted the long tradition of so-called 'humanistic' ideals and values. This resulted in changing shifts from 'learning per-se' to 'learning for the labor market', which challenged everyone involved in education at the universities. While many universities welcomed the neoliberal paradigm in teaching and learning, a growing body of literature started questioning whether the superiority of this paradigm led to irreversible reduction of humanistic values such as freedom, autonomy, emancipation, etc. In an attempt to explore the relationship between humanistic and neoliberal approaches to the University and to understand the attitudes of the main actors of higher education regarding the goals and mission of university today, a study among students was conducted in 2018. This paper presents the results of this study which involved 735 students from 11 faculties from Zagreb (Croatia). The results indicate that students look at university education from a pragmatic and egocentric (self-oriented) perspective. More specifically, they see the importance of higher education in developing themselves as free and independent individuals, but fail to see the broader context of the university and its role in the society. Results also show that students from technical sciences tend to agree more with the statements that relate to neoliberal orientation of higher education and university, as opposed to students from humanities and social sciences.

Keywords: Higher Education, University, Humanism, Neoliberalism

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Introduction

Over the past few decades, with the collapse of the Eastern Bloc, along with the establishment of anti-Soviet and anti-communist movements, the space has opened up for economies to connect and free themselves from the constraints imposed by political forces. Goods, services and human capital are beginning to move more easily across borders, resulting in disappearance of geographical constraints and creation of extraterritorial relations. In this process, the nation-state lost the power to regulate the flow of the goods and services, so free-market logic was soon promoted as the only solution for economic growth and gaining monopoly at the global level. This created a global sphere of competitiveness in which nations, in silent fight for dominance, ruthlessly use all possible resources that can help in positioning themselves in the world rankings. Natural resources that one country possesses are no longer seen as a key factor in its prosperity, but technological innovations that can help enhance the manufacturing process or reduce cost and production time.

Increasing the need for innovations led to increasing the need for new knowledges and smart and skillful human capital that could replace the physical one. This resulted in placing education as a national priority and an integral part of contemporary political ideologies. The notion that education, especially higher education, could be used as a mean of stimulating the economy and global competitiveness led to a demand for greater university involvement in the economy and society. The university started interacting more with business and communities by carrying out numerous social, enterprising and innovation activities alongside its teaching and research activities. Widening university activities is referred as the 'third mission' that, on the one hand, merges the idea of university as the bearer of positive changes that contribute to social development, and on the other, the idea of university as a key element of economic growth and development (Scott, 2006; Trencher et. al, 2014; Loi, 2015; Cooper, 2017; Pinheiro, 2017). However, by engaging more deeply in developing what is now called 'knowledge-based economy' and producing more specialized knowledges that meets the rapid technological and industrial needs, very soon the 'social' part of the 'third mission' was removed. This resulted in making the 'third mission' *de facto* an economic mission, which is less and less associated with the concept of the university as a socially responsible institution and more with the perception of the university as a 'hybrid organization' (Slaughter and Leslie, 1997). Such organization is tightly connected to the industry and is more focused on the production of useful and cost-effective knowledges, gradually undermining the humanistic values on which it was based on for a very long time, such as autonomy, freedom, equality and accessibility. In this way, university is transformed from a relatively autonomous institution that has evolved within the humanist tradition into an adaptive-bureaucratic and business-like institution (Readings, 1995; Fish, 2005) that is no longer oriented towards the benefit of the common good, but rather to the benefit of particular interests.

The task of the university is no longer the well-being of the individual and society, but the achievement of economic and political supremacy, through the development of human capital whose *modus essendi* and *modus operandi* are reduced to efficiency, competitiveness and entrepreneurship. In this way, higher education creates a semi-educated individual who must fit into the economic system, which, according to Fromm (1965), leads to deformations of individuality and a sense of emptiness. The

individual no longer sees education as a process by which he asserts himself as an emancipated person, but represents only a necessary process which he must pass in order to enter the labor market. The knowledge an individual has acquired through university education is fragmented and specialized because he no longer possesses the capacity to critically reflect on information and relate the content of information to a meaningful whole.

The idea of market-oriented (pragmatic) university is clearly seen in the strategic documents on higher education and university at the European level. In these documents[1], university is seen as an institution that participates equally in the process of developing the knowledge-based economy, by teaching relevant and current skills needed for employment, growth and competitiveness. Furthermore, it is emphasized that university should focus on ensuring sustainable financial resources and promoting international attractiveness and competitiveness. Specialization, innovation, mobility, flexibility, competences and management are the keywords that should guide all universities wishing to survive in the market. Moreover, the emphasis is placed on transversal competences, such as persistence, motivation, financial literacy and the ability to mobilize resources.

Despite the large amount of literature that warn about the negative effects of market-driven trends in higher education (Aronowitz, 2000; Checkoway, 2001; Bok, 2003; Newman, Courtier, and Scurry, 2004; Guthrie and Neuman, 2007; Kronman, 2007; Gibbs, 2009; Trani and Holsworth, 2010; Giroux, 2011; Hurt, 2012; McGettigan, 2013), research that examined attitudes of main actors of the university, such as teachers and students, are rare and insufficient for getting the bigger picture about the consequences of these trends. Pritchard (2004), for example, conducted a study with 82 university teachers and 986 German university students on the connection between teachers and students in the teaching and learning process, relying on Humboldt's three postulates: 1. unity of teachers and students; 2. unity of research and teaching and; 3. unity of knowledge. The research showed that, in terms of the unity of teachers and students, both groups said that nurturing relationship with each other was extremely important. In examining the unity of research and teaching, more than two-thirds of teachers said they view students as partners in the pursuit of knowledge, and 87.5% believe that promoting scientific work is a key part of their work. 87% of teachers and 70% of students believed that the university should contribute to students' personal development, although both groups stressed this should not take precedence over other segments of development (such as professional or emotional). The author concluded that Humboldt's idea of university is still present in German universities, but is more important to teachers than to students, who tend to view the university mostly as place where they acquire professional skills for easier employment.
Furthermore, Leisyte, Enders, and de Boer (2009) conducted research in England and the Netherlands with 48 university teachers, in which they examined their views on

[1] For example: *White Paper on Education and Training - Teaching and Learning - Towards the Learning Society* (Commission of the European Communities, 1995); *The Role of Universities in the Europe of Knowledge* (European Commission, 2003); Reform of the Universities in the Framework of the Lisbon Strategy (European Commission, 2005); *Supporting Growth and Jobs – An Agenda for the Modernisation of Europe's Higher Education Systems* (European Commission, 2011); *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on a renewed EU agenda for higher education* (European Commission, 2017).

the impact of a changing institutional environment on teaching and research. The results indicated that, according to teachers, teaching and research should be closely linked, but not in favor of external demands and needs. A similar study was conducted by Reiners (2014). She questioned the views of German and English university teachers on changes in higher education in relation to Humboldt's and neoliberal model. In that research, English university teachers emphasized the need to link teaching and research and advocated a change in the way universities function for easier adaptation to the needs of the market, which was, for the author, a clear evidence of a paradigm shift from the humanistic to the neoliberal one. On the other hand, German university teachers, although inclined to the Humboldt model, emphasized the need to adapt the university to contemporary circumstances, that is, to balance humanist ideals and contemporary needs. Moreover, unlike their English counterparts, German teachers strongly advocated the autonomy of the institution, which explains why university teachers continue to participate in the management of German universities and not external actors.

One of the most comprehensive scientific studies, *Changing Academic Profession* (CAP) (Teichler, Akira and Cummings, 2013) was conducted to examine changes in the university in relation to selected elements of the Humboldt model. The survey was conducted from 2004 to 2012 with more than 25,000 faculty staff from 19 countries. The main topics of the research were the perceptions about their institutional environment, objectives of teaching and research, as well as their job satisfaction. The results showed that internationalization of education, growth of entrepreneurial activities and the adoption of managerial management styles affected teacher's work and profession. In addition to CAP research, McNay (2007) conducted a study on the higher education values with 300 university teachers from the United Kingdom. The study examined teachers' personal and professional values and their views on values that should support higher education, including: commitment to the pursuit of truth, mastering scientific thinking, professional responsibility, freedom of thought and expression, adherence to different opinions and attitudes, personality development and contribution to society. The results showed that university teachers stressed humanistic values as important in their work and expressed concern about the increasing focus on practical knowledges and specialized skills. Specifically, they pointed out that the university has lost its role as a critic of society and that with commercialization and marketization the integrity of science was fading. Furthermore, they argued that competitiveness has led to a decrease in collaboration between scholars and that students no longer view the university as a place in which they can develop their personality, but only as place in which they will get the knowledge to enter the job market. Finally, teachers said that students were an important factor in universities and that they need to nurture the ideas and values of their institution together. A gap in understanding the role of the university, teachers stressed, could lead to misunderstanding and alienation from one another.

In view of the above, a research was conducted about examining the students' perceptions on higher education and the University in Croatia, as a valuable contribution to debates on university in contemporary context.

Research purpose

The purpose of the research was twofold. Firstly, it attempted to identify and describe the students' perceptions about most important tasks of higher education. Secondly, it purported to explore which direction of higher education and the University (humanistic or neoliberal) students were more inclined to. The aim of this research was not to confirm or reject a particular hypothesis, but rather from the perspective of students, to analyze the situation in higher education in Croatia. In addition to exploring the students' perceptions, the research also explored differences in perceptions between two fields of study (technical sciences and humanities and social sciences).

Research sample

The study was conducted in the academic year 2018/2019 on a sample of 735 1st year graduate students from the University of Zagreb, Croatia. The sample included available students from 11 faculties, from two fields of study: technical sciences and humanities and social sciences. Five faculties belong to technical sciences (N=419; 57%) and six to humanities and social sciences (N=316; 43%) (*Table 1*). A total of 44,5% of male respondents (N=327) and 55,5% of female respondents (N=408) participated in the sample.

Field	Faculty	No of participants (N)
Technical sciences	Faculty of Architecture	47
	Faculty of Electrical Engineering and Computing	20
	Faculty of Chemical Engineering and Technology	1
	Faculty of Mechanical Engineering and Naval Architecture	238
	Faculty of Civil Engineering	113
Humanities and Social Sciences	Faculty of Economics	10
	Faculty of Political Science	9
	Faculty of Humanities and Social Sciences	159
	University Department of Croatian Studies	10
	Faculty of Law	19
	Faculty of Teacher Education	109
	Total	**735**

Table 1. Research sample (field of study, faculty and number of participants)

Instrument

As no suitable research instrument had been found in the available literature, the original survey[2] was created for research purposes, which was divided into three interconnected sections. The first section examined the students' perceptions about most important tasks of higher education (HE). Students were asked to rank the

[2] Except in the second section of the survey, where the statements are largely taken from the instrument constructed by Ilišin and Spajić-Vrkaš (2017) for the research about the needs, problems and potentials of the young people in Croatia.

importance of six proposed tasks of higher education, with the first place indicating the most important and sixth least important task. The obtained data are grouped into three categories. The tasks of higher education which students ranked first or second were grouped under category 'The most important task'. The tasks students ranked third or fourth were grouped under category 'Somewhat important task', while the tasks that were ranked in last two places were grouped under category 'Least important task'.

In the second section of the survey, students assessed to what extent they agree or disagree with nine statements about higher education orientation on a 5-point Likert scale. The reliability of the measurement scale was analyzed by Cronbach's alpha coefficient. The result of the analysis indicated that the measurement scale had an acceptable level of reliability ($\alpha = 0.731$). The third section examined students' perceptions about University orientation. Students were offered seven statements about University which they assessed on 5-point Likert scale. Cronbach's alpha coefficient level was acceptable ($\alpha = 0.785$). The results from 5-point scales were reduced to three categories. The first category included the 'strongly disagree' and 'disagree' quantifiers, while the third category included 'agree' and 'strongly agree' quantifiers. The 'Neither agree nor disagree' quantifier is the second (middle) category.

The survey had three additional questions, which examined the frequency of student's active participation in local community and their views on whether the University should focus on preparing students to work for the benefit of the local community and society as a whole. In the first question students evaluated how often, since their enrollment in higher education, they participated in public debates and discussions relevant to the well-being of society in whole. They were offered a six-point scale (from 'never' to 'more than six times a year'). The second question focused on frequency of their volunteer work in their local community since their enrollment in higher education. As in the previous question, they were offered a six-point scale (from 'never' to 'more than six times a year'). The third question examined their attitudes about whether the University should focus on preparing them to work for the benefit of the local community and society as a whole. They answered this question using a 'Yes-No-Don't Know/Didn't think about it'- scale.

Students filled the survey online in a period from October 2018 till February 2019. The responses were analyzed in SPSS program for statistical analysis - version 23. Descriptive statistic (frequencies, arithmetic mean, standard deviation) and Independent Samples T-test were used in the analysis.

Results and discussion

As seen in Chart 1, the most important tasks of the University, according to students, are the development of a free and independent individual, preparation of individual for labor market and advancement of science. On the other hand, ensuring the welfare of the family and strengthening the national economy are seen as least important tasks. The task of ensuring the well-being of society as a whole is ranked as somewhat important.

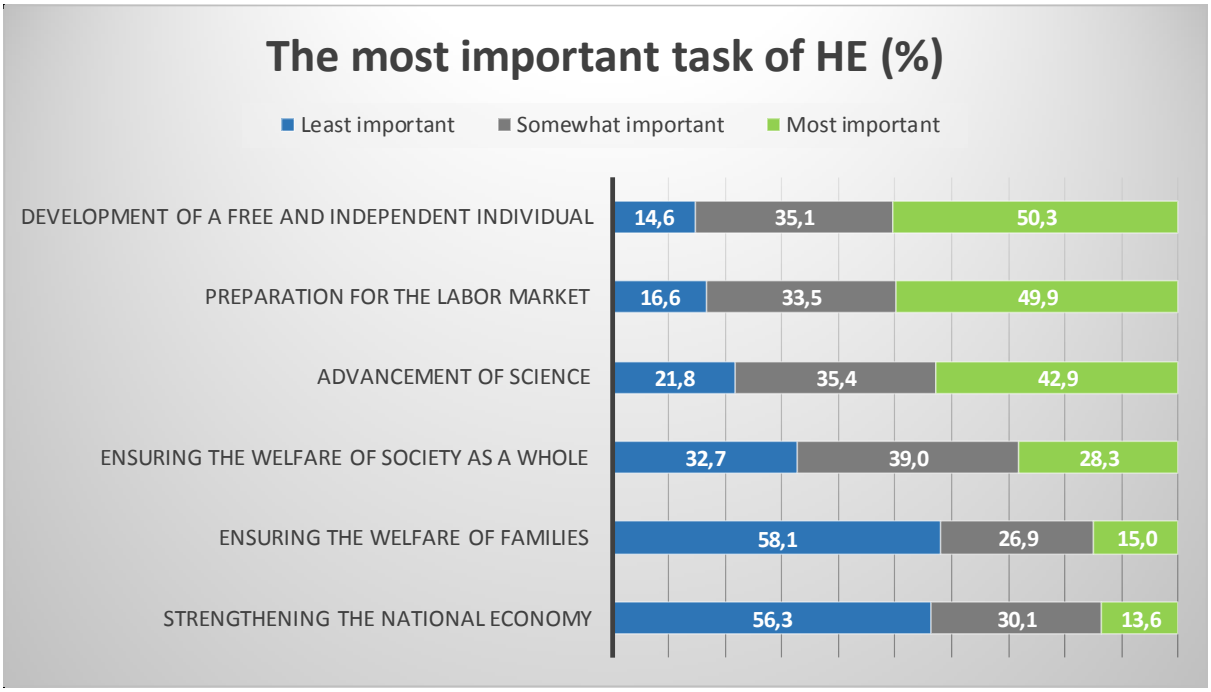

Chart 1. Ranking importance of six proposed tasks of higher education (%)

Chart 2 shows the results of students' perceptions about higher education orientation. More than 45% students (strongly) agree that higher education should be primarily oriented towards the interests of the labor market (M = 3.25; SD = .814), which corresponds to HE's highly-ranked task of preparation of students for the labor market (Chart 1). On the other hand, 20% think that higher education should be primarily oriented towards the interests of the capital, while almost half of them think quite the opposite (M = 2.64; SD = .874). The inconsistency of answers between first section (Chart 1) and section (Chart 2) is visible in the question about the role of HE in developing a free and independent individual. While half of students ranked the task of 'developing of a free and independent individual' as most important in first section of the survey, in the second 57% of them were unsure about should higher education be oriented towards this task (M = 3.35; SD = .612).

Chart 2 reveals that students can't make up their mind about the orientation of higher education towards developing local community (M = 3.35; SD = .657), ensuring world peace (M = 3.24; SD = .800) or ending inequalities among people (M = 3.14; SD = .607). These results are consistent with the scattered ranking of importance of higher education in ensuring the welfare of society as a whole in Chart 1. On the other hand, low-ranked task of ensuring welfare of the families in the first section is inconsistent with the result in second section, where 37% of students (strongly) agree that it should focus on family. Regarding the latter, 44% don't have a strong opinion about it (M = 3.09; SD = .867).

It is interesting to point out that 31% of students (strongly) disagree that higher education should focus on the interests of integrated Europe (M = 2.83; SD = .923). This is quite surprising considering high priority Europe gives to higher education. This result could be an indicator of national closeness of Croatian students to European integrations, which can be linked to the fact that almost 40% of them

believe that higher education should be oriented towards the interests of the state (M = 3.02; SD = .918).

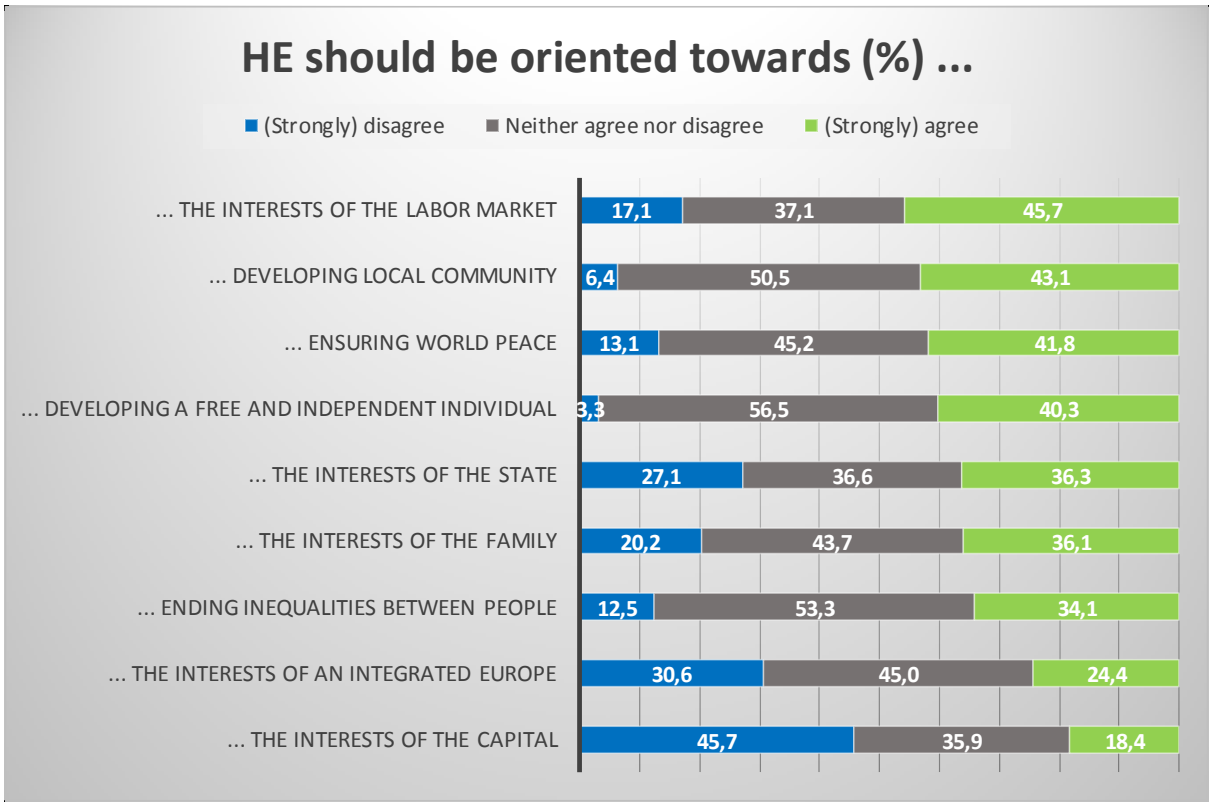

Chart 2. Students' perception on higher education orientation (%)

The results shown in Chart 2 are comparable to the results of an empirical study on the needs and problems of young people in Croatia from 2017 (Ilišin and Spajić-Vrkaš, 2017). In this research, young people positively assessed the importance of education in meeting the needs and goals at the social and individual levels, as well as in subordinating education to the interests and / or goals of the labor market. However, like students, young people were more restrained when it comes to the focus of education on the interests of capital and an integrated Europe.

Chart 3 shows the results of students' perceptions about direction in which University should be developed in the future. 64% of them (strongly) agree that study programs should focus on the acquisition of specific knowledges and skills that are market competitive (M = 3.29; SD = .538), while 40% agree that they should focus on gaining general knowledges and skills (M = 3.11; SD = .905), with equal number of those unsure about it. Large percentage of them (79%) believe that University should remain in the public domain (M = 1.71; SD = .909) and that it shouldn't be governed solely by the market laws (M = 2.27; SD = .716), but are unsure whether it should be free from political pressure and control (M = 3.23; SD = .524). Half of them think that University should be the main driver of social change (48,4%; M = 3.38; SD = .697), with 43% of them who can't make up their mind. Finally, they are not so sure whether University should encourage national and economic growth and development (54%; M = 3.19; SD = .716).

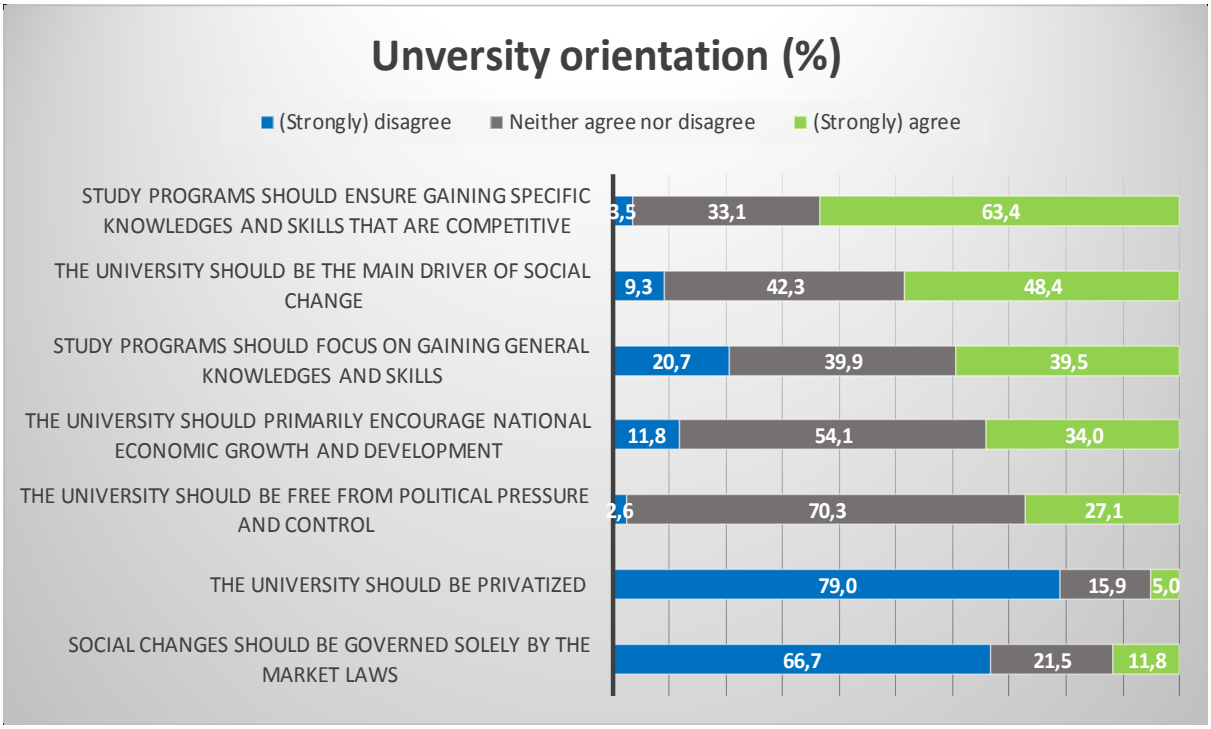

Chart 3. Students' perception on University orientation (%)

The results of the survey indicate a highly egocentric (self-oriented) and pragmatic perspective in understanding the tasks and roles of higher education and the University. Based on their answers, the University of Zagreb should develop into an institution that will prepare them for the labor market in a way to focus more on teaching specialized knowledges and skills that are competitive in the market, which is supported by their view that higher education should be subordinated to the interests of the labor market. More specifically, they see the importance of higher education in developing themselves as free and independent individuals, but failed to see the role of University in ensuring well-being of society and family, national culture and tradition. This shows that university education is viewed from the perspective of particular (own) usefulness, that is, they are more inclined to see education only as a mean of achieving better position in the labor market, without seeing the broader context of education and its role in the development of the society.

This is supported by the fact that, although they say that the University should prepare them to work for the benefit of a society as a whole (Chart 4) and that it should reflect certain humanistic values to some extent (such as ensuring world peace or ending inequalities or between people) their active involvement in promoting these values is at a very low level. This is confirmed by the fact that the majority (62%) has never volunteered in the local community (Chart 5) and half never participated in public debates on issues that are important to the well-being of society as a whole.

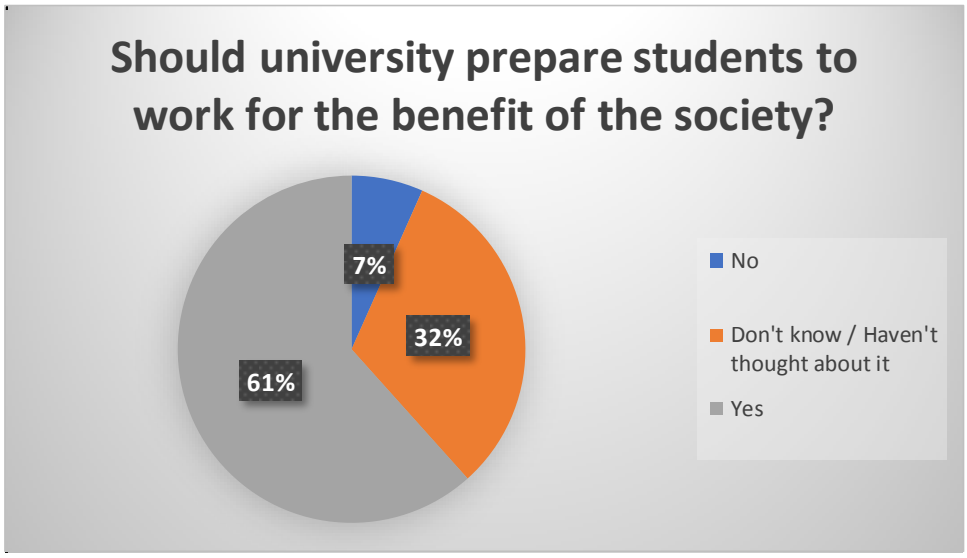

Chart 4. Students responses on whether university should prepare students to work for the benefit of the society (%)

This information reveals not only the student's passivity, but also their separation from the HE institution, as well as from the very idea of University, which they should be a part. In other words, although they advocate that the University should promote certain humanistic values, they are not sufficiently aware of the importance of their own involvement in the process, but rather hold that it is the task of some other actors. This conclusion is supported by the results of research conducted by Ikeda, Campomar and Veludo-de-Oliveira (2009) and Kandiko and Mawer (2013) which show that, although students believe that education should be oriented towards society, most of them in fact seek to achieve short-term results and material satisfaction, thereby confirming its neoliberal orientation. These results indicate the need for further research on the values of students in the education process and their commitment to promoting those values.

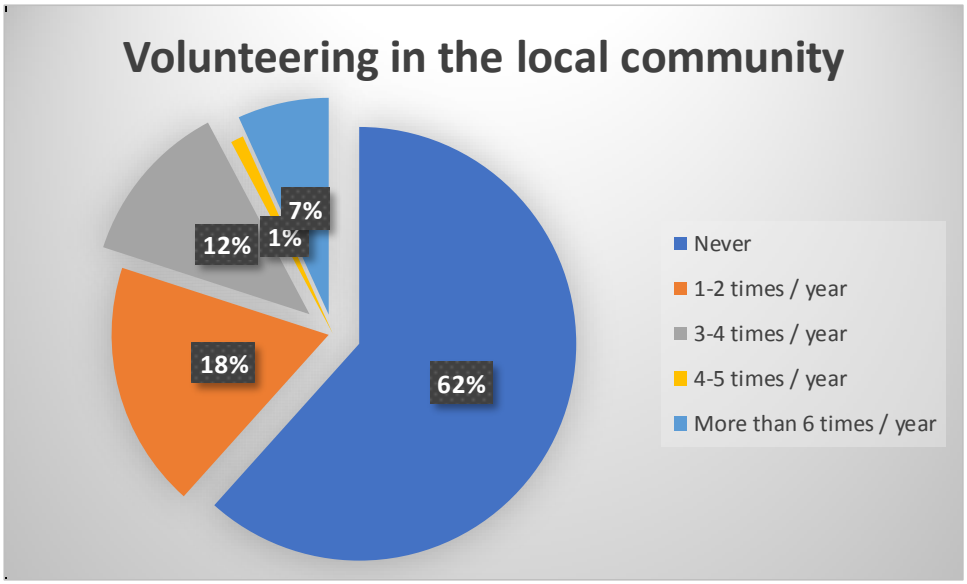

Chart 5. Frequency of student volunteering in local community (%)

Results of the t-test in Table 2 show a statistically significant mean difference in seven out of nine statements regarding higher education orientation at the .05 level of significance. On average, students from technical sciences (TEH) tend to support statements that relate to neoliberal orientation of higher education then the students from humanities and social sciences (HUM-SOC). For example, students from technical sciences tend to agree more with statements that higher education should be oriented towards the interest of the labor market, state, capital and integrated Europe as opposed to students from humanities and social sciences, which tend to agree more with statements that higher education should be oriented towards interests of society as a whole, ensuring world peace and ending inequalities between people.

	F	t*	df	Difference
Higher education should be oriented towards the interests of the labor market	4,747	4,254	733	TEH > HUM-SOC
Higher education should be oriented towards the interests of society as a whole	9,735	-3,157	733	HUM-SOC > TEH
Higher education should be oriented towards the interests of the state	2,010	2,222	733	TEH > HUM-SOC
Higher education should be oriented towards ensuring world peace	3,463	-4,025	733	HUM-SOC > TEH
Higher education should be oriented towards the interests of capital	,080	7,359	733	TEH > HUM-SOC
Higher education should be oriented towards the interests of an integrated Europe	4,537	4,448	733	TEH > HUM-SOC
Higher education should be oriented towards ending inequalities between people	14,535	-4,520	733	HUM-SOC > TEH

* $p < .05$.

Table 2. Results of the t-test on higher education orientation

Results of the t-test in Table 3 shows that means in three out of seven statements regarding University orientation statistically differs at the .05 level of significance. On average, students from technical sciences tend to agree more that social changes should be governed solely by market laws and that University should be privatized than students from humanities and social sciences. They, on the other hand, tend to agree mora that University should be free from political pressure and control.

	F	t*	df	Difference
Social changes should be governed solely by the market laws	126,117	5,674	733	TEH > HUM-SOC
The University should be free from political pressure and control	46,969	-5,364	733	HUM-SOC > TEH
The University should be privatized	9,427	2,491	733	TEH > HUM-SOC

* $p < .05$.

Table 3. Results of the t-test on University orientation

Conclusion

The aim of this research was to explore students' perceptions about most important tasks and directions of higher education and the University of Zagreb. The results show that students have an egocentric (self-oriented) and pragmatic perspective in understanding the tasks and roles of higher education and the University. For them, the task of higher education in development of free and independent individual and in preparing the individual for labor market are equally important. On the other side, tasks that are related to University's civic mission are less important, even though majority believe that University should prepare student to work for the benefit of society as a whole. Results also indicate that students are more neoliberal oriented, but it is very likely they are not aware of that. For instance, they strongly advocate that higher education should not be driven by the interests of labor market and that University should stay in public domain. According to this, students do not see the subordination of higher education to the labor market as part of the neoliberal doctrine, but view the relationship *university-labor market* solely through the prism of facilitating their transition to the world of work as quickly as possible. Students from technical sciences tend to agree more with the statements that relate to neoliberal orientation of higher education and university, as opposed to students from humanities and social sciences, which is not that surprising. Humanities and social sciences are focused on learning about the meaning, purpose and goals of historical and social phenomena rather than discovering the truth of the natural world (as is the case in the technical and natural sciences), which is reflected in university teaching and teacher-student relationships.

Results also indicate a need for further research on higher education and University, their tasks and roles in contemporary context. Further research should focus on examining the perceptions of university teachers, in order to obtain a more complete picture of the current situation in higher education in Croatia.

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Contact email: rjurcevi@ffzg.hr

Conflict: Nightmare or Opportunity in Higher Education Leadership

Marcel Lebrun, Plymouth State University, United States

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Abstract
Conflict is inevitable: People have different personalities, coping skills and manifest stress differently. Being a leader in the 21st century requires a skill set to be able to navigate conflict in a healthy and productive way rather than destructive and at times deadly. Throughout this article a variety of theoretical frameworks, strategies and interventions will be provided to the reader. Conflict can be a productive change agent provided that the leaders leading the team are able to communicate, problem solve, tap into their emotional and social intelligence and be civil in their daily interactions with subordinates. Ethical dilemmas are abundant in the workplace, ethical decision making is often at the root of many conflicts. Lack of morality, civility and conscience are allowing problems to escalate to the peak of crisis with workers quitting jobs in masses and unhealthy stress behaviors on the rise throughout the workforce. A series of step by step interventions are presented to the reader as possible directions when faced with conflict.

Keywords: Conflict Resolution, Ethical Dilemmas, Mediation, Resistance, Leadership, Problem Solving Interventions

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Conflict: Nightmare or Opportunity in Higher Education Leadership

Quote: “In the middle of difficulty lies opportunity”, Albert Einstein

Conflict is inevitable. Where there are groups of people, individuals will not be always be able to be in agreement or have consensus on a situation or problem.

Personality is what makes us unique. Our differences often lead to creative change but also to great chaos and conflict. The goal is whether that conflict is destructive or constructive. One leads to great transformation and change while the other leads to withdrawal, isolation and unhealthy work life stress and death in some cases.

Textbook Definition: “Conflict is a struggle that occurs when individuals, interdependent with others, perceive that those others are interfering with their goal attainment.” (Watson, 1972)

Key research questions:

What are the key benefits and disadvantages associated with conflict?
What hinders us from seeing conflict as constructive? How can we overcome these obstacles?
What impact does culture have on our perspectives around conflict?
What are successful tools and processes for conflict resolution in the workplace and in educational settings?

In many cases, effective conflict resolution can make the difference between positive and negative outcomes. The good news is that by resolving conflict successfully, you can solve many of the problems that it has brought to the surface, as well as getting benefits that you might not at first expect:

1. Increased understanding: The discussion needed to resolve conflict expands people's awareness of the situation, giving them an insight into how they can achieve their own goals without undermining those of other people.
2. Increased group cohesion: When conflict is resolved effectively, team members can develop stronger mutual respect, and a renewed faith in their ability to work together.
3. Improved self-knowledge: Conflict pushes individuals to examine their goals in close detail, helping them understand the things that are most important to them, sharpening their focus, and enhancing their effectiveness. However, if conflict is not handled effectively, the results can be damaging. Conflicting goals can quickly turn into personal dislike. Teamwork breaks down. Talent is wasted as people disengage from their work. And it's easy to end up in a vicious downward spiral of negativity and recrimination. (Mindtools.com, 2014).

Causes of Conflict:

The Five Types of Conflict: (Fisher & Ury, 1981, 2011)

1. Data Conflicts are caused by: lack of information, misinformation, and different views on what is relevant, different interpretation of data, different assessment, and procedures.

2. Interest conflicts are caused by perceived or actual competitive, substantive content interests, procedural interests, and psychological interests.
3. Structural conflicts are caused by destructive patterns of behavior or interaction, unequal control or ownership of limited resources, unequal power and authority, geographic, physical, or environmental relations that hinder cooperation and time constraints.
4. Value conflicts are caused by different criteria for evaluating ideas or behavior, exclusive intrinsically valuable goals, different ways of life ideology and religion.
5. Relationship conflicts are caused by strong emotions, misperceptions or stereotypes, poor or miscommunication and repetitive negative behavior.

Categories are related to interests, rights, and power: a) conflict between individuals with different goals, b) conflict between individuals with the same goals, c) conflict about power, and d) conflict within individuals. (Friend, 2010). Administrators in higher education are often in a leadership role where they are asked to negotiate, problem solve, resolve and manage conflict on a daily basis. Examples of Higher

Education problems:

Individuals with different goals conflict is often seen with competing faculty members within the same academic department who see the vision and mission of their department, college, university differently and are both competing for their own agendas to be in the forefront of the department's development and growth.

Individuals with the same goals often are side tracked by their own egos, agendas or experiences that put them in conflict with others. These individuals are often poor at communication and are typically reactive as they are unable to work collaboratively because of these competing agendas or egos.

Power is often at the root cause of many conflicts. A department chair or dean or provost makes a decision and depending on whether the individual faculty member is involved or a recipient of the decision, will result in whether power becomes a main ingredient in the conflict. Collaborative leadership decision making process is often much more successful in achieving results rather than authoritarian styles. (Goleman & Boyatsis 2013). Another factor is the response by the administrator, a defensive response will only escalate the conflict, negotiation and discussion may achieve a balanced approach to the problem or conflict.

Conflict within individuals discusses the wellbeing of the individual involved in the conflict. People have different coping skills, vast experiences that influence their perspectives on issues and problems thus finding their way into personal dynamics and relationship within the workplace.

Resistance: Agree vs Disagree: The Battle Begins

What is Resistance? Most often happens as a response to change. The ability to not get what is not wanted from the environment. Or is a defense mechanism that prevents change. Finally, individuals perceiving the risk as unsafe. The indicators of resistance are typically: refusal to participate; supporting in words but not actions,

displacing responsibility, deferring change to a future time, reliance on past practices. It is always a conundrum to address the resistance or not. One must see the appropriateness of resistance, whether addressing resistance is warranted and the extent to which others are committed to change. If these components are missing you may need to do a more thorough investigation of the resistance (Rognes, 2010).

The key to any effective intervention when dealing with resistance is communication. One needs to use gained knowledge and skills to assist in your response to conflict or resistance. Consider the following: Frame of reference, asking questions, using statements, providing feedback, and problem-solving strategies. Another key component is to understand what you as the facilitator is bringing to the process, be aware of your own biases and communication styles.

Quote:" Conflict is Inevitable but Combat is Optional." Max Lucado
Understanding the Theory: Conflict Styles

In the 1970s Kenneth Thomas and Ralph Kilmann identified five main styles of dealing with conflict that vary in their degrees of cooperativeness and assertiveness. They argued that people typically have a preferred conflict resolution style. However they also noted that different styles were most useful in different situations. They developed the Thomas Kilmann Conflict Mode Instrument (TKI) which helps you to identify which style you tend towards when conflict arises. Test is available online at https://takethetki.com/product/the-thomas-kilmann-instrument-tki/

Thomas and Kilmann's styles are:

Competitive: People who tend towards a competitive style take a firm stand, and know what they want. They usually operate from a position of power, drawn from things like position, rank, expertise, or persuasive ability. This style can be useful when there is an emergency and a decision needs to be made fast; when the decision is unpopular; or when defending against someone who is trying to exploit the situation selfishly. However it can leave people feeling bruised, unsatisfied and resentful when used in less urgent situations.

Collaborative: People tending towards a collaborative style try to meet the needs of all people involved. These people Conflict Resolution - Resolving conflict rationally and effectively can be highly assertive but unlike the competitor, they cooperate effectively and acknowledge that everyone is important. This style is useful when you need to bring together a variety of viewpoints to get the best solution; when there have been previous conflicts in the group; or when the situation is too important for a simple trade-off.

Compromising**:** People who prefer a compromising style try to find a solution that will at least partially satisfy everyone. Everyone is expected to give up something, and the compromiser him- or herself also expects to relinquish something. Compromise is useful when the cost of conflict is higher than the cost of losing ground, when equal strength opponents are at a standstill and when there is a deadline looming.

Accommodating**:** This style indicates a willingness to meet the needs of others at the expense of the person's own needs. The accommodator often knows when to give in to others, but can be persuaded to surrender a position even when it is not warranted. This person is not assertive but is highly cooperative. Accommodation is appropriate when the issues matter more to the other party, when peace is more valuable than winning, or when you want to be in a position to collect on this "favor" you gave. However people may not return favors, and overall this approach is unlikely to give the best outcomes.

Avoiding**:** People tending towards this style seek to evade the conflict entirely. This style is typified by delegating controversial decisions, accepting default decisions, and not wanting to hurt anyone's feelings. It can be appropriate when victory is impossible, when the controversy is trivial, or when someone else is in a better position to solve the problem. However in many situations this is a weak and ineffective approach to take. Once you understand the different styles, you can use them to think about the most appropriate approach (or mixture of approaches) for the situation you're in. You can also think about your own instinctive approach, and learn how you need to change this if necessary. Ideally you can adopt an approach that meets the situation, resolves the problem, respects people's legitimate interests, and mends damaged working relationships. (Pivotable Education.com, 2019)

Ethical Dilemmas

An ethical dilemma or ethical paradox is a decision-making problem between two possible moral imperatives, neither of which is unambiguously acceptable or preferable. The complexity arises out of the situational conflict in which obeying one would result in transgressing another. (Wikipedia, 2019).

Ethical dilemmas in leadership are varied and plentiful, they are an integral part of any type of leadership position. The goal is to navigate these successfully to ensure longevity in the role as a higher education leader. The influence of the climate and culture of the institution will influence whether academic leaders make unethical decisions. Scandals at higher education institutions have been plentiful and documented in the news almost daily with infractions and incidents. The most recent was the College Admission Scandal at University of Southern California where there were 8 universities involved, 11 college employees, 45 students and $5.9 million dollars paid directly or indirectly to college employees, (Fry, H et al 2019).

Another major sex abuse scandal was at the Penn State University where abuse was rampant and cover up went on for years with Coach Sandusky and President Joe Paterno eventually serving jail time. UC Santa Cruz suicide. Denice Denton took her own life in 2006, apparently the only suicide of a university president in recent decades. She had been pilloried for alleged overspending, including $600,000 in renovations to her university residence, a $30,000 dog run (included in the $600,000) and a $192,000-a-year job for her partner. Student protesters had followed her around campus. She leapt to her death from the roof of a San Francisco high-rise.(de Vise, Daniel, 2011)This is but the tip of the iceberg in higher education scandals with administrators and leaders. The root cause was the lack of being able to identify and resolve conflict in effective ways or the costs of resolving the conflict would have been too great and would have resulted in termination or poor press. The individuals

chose to ignore, procrastinate or deny the issues till they became a full blown scandal and eventually lead to death, termination or jail time for some of these institutional leaders. The results would have been different if they had made the decision to intervene and resolve the conflict.

Effective Conflict Resolution through Negotiation, Communication and Relationships

Conflict can we resolved successfully with the following foundational components of Negotiation

- Goal: not for one to win while others lose
- Conflict management technique
- Long history of success in business
- Can be used for many types of conflict
- Focuses on issues, not people involved
- Reduces the emotional component (Friend & Cook 2010) (Millar, 1984)

A second theory to conflict resolution is commonly referred to as the "Interest-Based Relational (IBR) Approach". This type of conflict resolution respects individual differences while helping people avoid becoming too entrenched in a fixed position. In resolving conflict using this approach, you follow these rules: (Dickie, 2015)

- Make sure that good relationships are the first priority: As far as possible, make sure that you treat the other calmly and that you try to build mutual respect. Do your best to be courteous to one-another and remain constructive under pressure.
- Keep people and problems separate: Recognize that in many cases the other person is not just "being difficult" – real and valid differences can lie behind conflictive positions. By separating the problem from the person, real issues can be debated without damaging working relationships.
- Pay attention to the interests that are being presented**:** By listening carefully you'll most-likely understand why the person is adopting his or her position.
- Listen first; talk second**:** To solve a problem effectively you have to understand where the other person is coming from before defending your own position.
- Set out the "Facts**":** Agree and establish the objective, observable elements that will have an impact on the decision.
- Explore options together**:** Be open to the idea that a third position may exist, and that you can get to this idea jointly. (Friend & Cook 2010), (Mindtools 2014)
-

By following these rules, you can often keep contentious discussions positive and constructive. This helps to prevent the antagonism and dislike which so-often causes conflict to spin out of control.

Using the Tool Conflict Resolution Process

Step One: Set the Scene If appropriate to the situation, agree the rules of the IBR Approach (or at least consider using the approach yourself.) Make sure that people understand that the conflict may be a mutual problem, which may be best resolved

through discussion and negotiation rather than through raw aggression. If you are involved in the conflict, emphasize the fact that you are presenting your perception of the problem. Use active listening skills to ensure you hear and understand other's positions and perceptions. 1. Restate 2. Paraphrase 3. Summarize and make sure that when you talk, you're using an adult, assertive approach rather than a submissive or aggressive style.

Step Two: Gather Information Here you are trying to get to the underlying interests, needs, and concerns. Ask for the other person's viewpoint and confirm that you respect his or her opinion and need his or her cooperation to solve the problem. Try to understand his or her motivations and goals, and see how your actions may be affecting these. Also, try to understand the conflict in objective terms: Is it affecting work performance? Damaging the delivery to the client? Disrupting team work? Hampering decision-making? Or so on. Be sure to focus on work issues and leave personalities out of the discussion. 1. Listen with empathy and see the conflict from the other person's point of view. 2. Identify issues clearly and concisely. 3. Use "I" statements. 4. Remain flexible. 5. Clarify feelings.

Step Three: Agree the Problem this sounds like an obvious step, but often different underlying needs, interests and goals can cause people to perceive problems very differently. You'll need to agree the problems that you are trying to solve before you'll find a mutually acceptable solution. Different people sometimes see different but interlocking problems – if you can't reach a common perception of the problem, then at the very least, you need to understand what the other person sees as the problem.

Step Four: Brainstorm Possible Solutions If everyone is going to feel satisfied with the resolution, it will help if everyone has had fair input in generating solutions. Brainstorm possible solutions, and be open to all ideas, including ones you never considered before.

Step Five: Negotiate a Solution By this stage, the conflict may be resolved: Both sides may better understand the position of the other, and a mutually satisfactory solution may be clear to all. However you may also have uncovered real differences between your positions. This is where a technique like win-win negotiation can be useful to find a solution that, at least to some extent, satisfies everyone. There are three guiding principles here: Be Calm, Be Patient, Have Respect…http://www.uvm.edu/~aellis5/Mind.tools.pdf (2014)

Interventions for Data, Interest, Structural, Value, Relationship Conflicts

Data Interventions: reach agreement on what is important, agree on process to collect data, develop common criteria to assess data, use third party experts to gain outside opinion or break deadlocks.

Interest-Based Interventions: focus on interests not positions, look for objective criteria, develop integrative solutions that address all parties' needs, search for ways to expand options or resources, and develop tradeoffs to satisfy interests of different strengths.

Structural Interventions: clearly define/change roles, replace destructive behavior patterns, establish a fair and a mutually acceptable decision making process, change negotiation process from position to interest based bargaining, modify means of influence used by participants, less coercion and more persuasion.

Value Interventions: avoid defining problem in terms of value, allow parties to agree to disagree, create spheres of influence where one set of values dominates and search for common areas of values.

Relationship Interventions: control expression of emotions through procedures, promote expression of emotions by legitimizing feelings and providing a process, clarify perceptions/build positive perception, improve quality, quantity, of communication, block negative repetitive behavior by changing structure, and encourage positive problem solving attitudes. (Fry, 1981,2011).

Mediation

Mediation is often a more productive approach to resolving conflict in the workplace than more formal methods. It can help to improve trust and team relationships, especially if it is used to deal with conflicts promptly, as soon as they arise. It is often not recommended for harassment, sexual assault allegations and bullying as this would put the victim in an unsafe position. It is confidential, and needs to be facilitated by a manager or another team member who both sides can trust to be objective, unbiased and non-judgmental.

Begin mediation by listening to each person's story separately. Next, bring them together to meet face-to-face. Allow them an equal chance to speak and to explain their perspective. Brainstorm mutually beneficial solutions and, once both parties settle on one, summarize the agreement.

Finally, clarify what steps each participant needs to take and what the expectations are for the future.

A Step-by-Step Guide to Mediation

The following guide is detailed at : https://www.mediate.com/articles/steppJ.cfm 08/20/2019

The mediator acts as a go-between and an enabler in a conversation between the people involved in the conflict. He or she helps them to come to a mutually satisfactory agreement, and avoid getting derailed or stuck in an argument.

It's important that he reserves his own judgment and guides people toward their own resolution, rather than suggesting or ruling on the outcome himself. However, he must ensure a fair solution, guarding against the effects of any imbalance of power between the participants.

Use these six steps to help you to mediate successfully:

1. Establish the Ground Rules

First, meet with each participant separately, to outline what they can expect from you and from the process. Make sure that they are both willing to participate – mediation won't work if you try to impose it!

Agree some ground rules for the next stage of the process. These might include asking each person to come prepared with some solutions or ideas, listening with an open mind, and avoiding interruptions. It's important that you build trust with both participants, and make them feel safe enough to talk openly and truthfully with you and with one another.

Tip:
Mediation is confidential for everyone involved, unless they all agree to share their actions and comments with others. Be sure to remind participants of this regularly, to make sure that they are comfortable with and adhere to the process.

2. Have a Full and Frank Discussion with Each Person, Individually

Find a quiet room in a neutral location where you won't be disturbed, away from the rest of the team.

Meeting with the participants individually will allow them to share their side of the story with you openly and honestly. Use active listening skills and open questions to get to the root of the problem. Reflect upon and paraphrase what your team members tell you, to show that you understand their points of view.

Use your emotional intelligence to identify the underlying cause of the conflict, and pay attention to each participant's body language to help you to get a better sense of their state of mind.

Be prepared to encounter a range of strong feelings, from fear and distress to anger, and even a wish for revenge. But avoid shutting these feelings down – this might be the first time that your team members have fully expressed what the impact of the conflict is, and it will likely give you valuable clues to its cause.

Then ask each person what they hope to gain from the mediation. Remind them that it's not about winning, but about finding a practical resolution that suits everyone who's involved.

Tip:
You may want to leave sometime between individual and joint meetings, so that each participant has time to reflect on the discussion that they've had with you and to consider their position in what might be a fresh light.

3. Explore the Issues Together

Once both sides have had time to reflect, arrange a joint meeting. Open the session on a positive note, by thanking them for being open to resolving the conflict. Remind

them of the ground rules, summarize the situation, and then set out the main areas of agreement and disagreement.

Explore every issue in turn, and encourage the participants to express how they feel to one another. Make sure that they have equal time to talk, and that they can express themselves fully and without interruption. If they become defensive or aggressive , look for ways to bring the conversation back to the main problem at hand. Encourage them to empathize with one another, and to improve their understanding of one another's point of view by asking questions themselves.

Tip:
Make sure that there's an empty room close by, where people can go to have some time away from the discussion if it starts to stall or become heated. You may also want to speak with each person separately to move the discussion along. Either way, your aim is, eventually, to bring them back together again!

4. Negotiate and Compromise

Once both sides have given their views, shift their attention from the past to the future.

Go over the points that were raised in your meetings, and try to identify areas where they have at least some shared opinions. Resolve these issues first, as a “quick win” will help to build positive momentum, and bolster both sides' confidence that a workable solution can be found.

Ask participants to brainstorm solutions and encourage win-win negotiation to make sure that they reach a solution that they're happy with. If a suggestion is unreasonable, ask the initiator what he would consider to be reasonable, and whether he thinks that the other party would agree

5. Create a Written Agreement

Take notes during all of the meetings that you mediate and, once the participants have reached a solution, write that up as a formal agreement. Make sure that the agreement is easy to understand and that actions are SMART (Specific, Measurable, Achievable, Relevant, and Time-bound).

Help to avoid any confusion or new disagreement by checking that your language is neutral, free from jargon, and clear for all. Read the agreement back to both parties to make sure that they fully understand what will be expected from them, and to clarify any points that they do not understand or that are too general or vague.

You might even consider getting each person to sign the agreement. This can add weight and finality to the outcome, and help to increase their accountability . But mediation is designed to be a relatively informal process, and you could undermine this by pushing too hard.

Tip:
Bear in mind that mediation might not always result in an agreement, despite the mediator's best efforts. In these situations, you'll likely need to go on to use a more formal procedure.

6. Get Some Closure

It's time to bring the mediation to a close. Give the participants copies of the agreed statement, and clearly explains what will be expected from them once they're back in the workplace.

Take some time to prepare, together, how to overcome obstacles to implementing the agreement, and to explore options for dealing with them. Summarize the next steps, offer your continued support as a mediator, and thank both parties for their help and cooperation.

Tip:
Consider checking in with the participants informally at a later date, to make sure that they are on track with their agreement.
https://outreach.un.org/mun/content/process-negotiation 08/20/2019, (Steep, 2003).

Quote: “The Harder the Conflict the more Glorious the Triumph,” Thomas Paine

Conclusion: Conflict is part of being alive. The effects of conflict are multi-dimensional and are intertwined in every aspect of our lives. The goal to successful leadership is to be able to use the tools available and tailor make them for the unique individuals, situations, dynamics and personalities of the people you supervise or lead. Conflict resolution skills can be learned and practiced. Every problem is an opportunity for growth. The key as a leader is to be able to reflect upon each incident or situation and evaluate yourself honestly in how you approached and resolved the conflict. It requires self-reflection that is honest and forthright. The only way one will grow as a leader is to engage regularly in this self-reflection with honest feedback from others and use the new gained knowledge to do better the next time, because there will always be another opportunity.

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Professional Growth Through Professional Employment Program

Annaliza B. Viernes, JRU College of Business Administration, Philippines

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Abstract
In the second semester of school year 2012-2013, JRU pioneered a special training program for graduating students in partnership with LiveIt, a subsidiary of the Ayala Group. An initial group of 81 highly-motivated graduating students from the College of Business Administration were chosen as the first group for the Professional Employment Program (PEP). They met four half days a week in a specially constructed classroom and were taught by a highly trained faculty from LiveIt. They completed the following courses: Business Communications, Service Culture, Systems Thinking, and Fundamentals I & II which are Sales and Technical Support. They were also trained on Application & Interview Readiness for jobs. This paper aimed to study the professional growth of Jose Rizal University (JRU) graduating students through the Professional Employment Program (PEP). The results showed that all respondents had positive experiences with PEP, and used words like: the program was worth the effort, effective, nice, great, very good, perfect, interesting, challenging, helped them a lot, extra ordinary and phenomenal, and the best program that they ever had. Although they admitted that the program was difficult and that they failed many times, in the end they realized that they benefitted a lot from it through the help of their patient and supportive mentors who brought out the best in them.

Keywords: Professional Employment, PEP

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According to (Kerr, Von Glinow, and Schriesheim, 2009) they characterized the Professional Employment Program as: an identifiable base of knowledge from which the students practice, has a lifelong commitment to professional growth, through extended education students can acquire a mastery of knowledge, participants should possess a strong commitment to the field, and has a good decision making skills regarding application of the knowledge he/she acquired.

In the study of Marzano (2010), entitled "What works in school: Translating research into action" It becomes a challenge to ensure that such individuals have adequate opportunities to satisfy needs for professional growth but they choose to remain in a particular job for many years. However, more often than not there is no structured career ladder to follow for professional careers. Employees progress through a number of upward job changes, in many careers like for instance, from sales associate to department manager to store manager to regional manager.

Professional employment involves its relationship to student achievement. Much of the available research on this program identified several variables like school, teacher, student level, student level of learning within the classroom, parent, community involvement, instructional strategies, classroom management, curriculum design, student background, student knowledge, and student motivation as one of the factors to be considered in student achievement. Guskey (1995), Willis (2000), and Marzano (2003).

In 2007, the first Professional Employment Program (PEP) was offered at the Information Communication Technology in Australia. The nature of delivery in PEP was purely in the form of workshops with highly interactive teaching approach including activities like: industry visits, expert feedback, team activities, mock-interview, and self-assessment. About 60 ICT international postgraduate students commencing their final semester participated in the program. The session runs four full days from June 18 to June 21.

Furthermore, the first Professional Employment Program (PEP) was launched in the Faculty of Information Communication Technology (FICT). It is a 4-days career development workshop. In response to student feedback from focus groups conducted in 2006 the Professional Employment Program (PEP) was developed. These focus groups identified a need for a program that would address international graduates' generic skills for employment. To increased job readiness upon completion of their ICT masters courses at Swinburne University of Technology, the program Swinburnes Careers and Employment Unit (CEU), focused on helping overseas postgraduate students understand the Australian job application process and workplace culture.

In September 2012, Jose Rizal University (JRU) in partnership with LiveIt (a member of the Ayala Group of Companies) established the first ever Professional Employment Program (PEP) in the Philippines to meet the growing demand of the progressing industry. The program aims to equip students with industry-specific skills and enable them to acquire their dream job and establish a great career after graduating from college.

An initial group of 81 highly-motivated graduating students from the College of Business Administration were chosen as the first group for the Professional Employment Program (PEP). They met four half days a week in a specially constructed classroom and were taught by a highly trained faculty from LiveIt. They completed the following courses: Business Communications, Service Culture, Systems Thinking, and Fundamentals I & II. They were also trained on Application & Interview Readiness for jobs. These courses have a total of fifteen (15) unit credits.

The 5 courses aimed to equip students with the following competencies: (1) Excellent spoken English, (2) Broadly applicable service, sales, support skills, (3) Job specific problem solving skills, knowledge and routines, (4) Strong work ethic & habits, and (5) Solid computer literacy. The program is totally different in the normal classroom set-up because, there are no lectures, quizzes or home-works. Students are engaged through cases, challenging simulation, and computer-based interaction.

At the end of the program PEP students were assisted in getting job interviews with their preferred employer such as; Accenture, Ayala Land, BPI, Globe, Stream, Honda and Isuzu Cars. Job hunting became much easier and seamless because graduates were equipped with the necessary competencies needed by the industries.

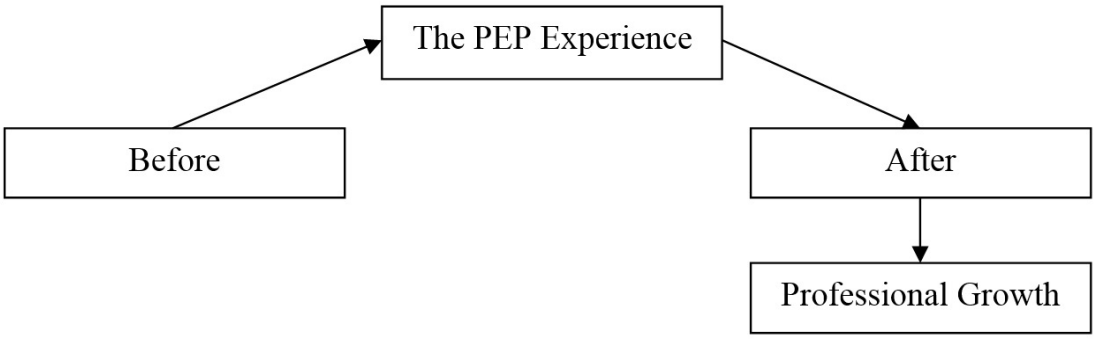
This research study aimed to describe the PEP program from the viewpoint of students who underwent it at Jose Rizal University. Specifically, the study sought to find out: (1) their perception about the program before enrolling, (2) their experiences during the program, (3) the benefits they got after attending the program, (4) their assessment about the program, and (5) their suggestions or recommendations about the program.

Results of this study may guide the direction of future PEP programs in the university on whether a new technique can be adopted and implemented to improve student's experiences about it.

Also, this paper may serve as a basis for future research on the effectiveness of the program through a tracer study or the employability rate of the graduates.

Figure 1. Conceptual Framework

Perception of Professional Growth through the JRU-PEP



The conceptual framework, as shown in Figure 1, presents the experiences and professional growth of the 1st batch of students enrolled in JRU-PEP program.

Method

This section discusses the methods that were used in gathering data to answer the research statement of the problem.

First, the focus group discussion technique was used to make sure that the respondents would feel free to share their experiences as well as their assessments, suggestions and recommendations about the program. The questions were discussed and explained thoroughly so that the respondents will not be misguided in responding.

Second, individual interview was done to validate the information/data collected during the focus group discussion.

Third, written interview with open ended questionnaires was conducted to make sure that the respondents will include other information that they didn't mention during the oral interview and to validate the earlier data obtained.

The interviews were recorded and transcribed.

Sixteen participants who had undergone Professional Employment Program (PEP) for school year 2012-2013, second semester were included in the study. These included five (5) BSBA-Accounting majors, five (5) BSBA-Marketing majors, four (4) BSBA Management majors and to (2) BSBA-Banking and Finance majors.

Results

The information gathered from the respondents are presented, and analyzed as follows according to the research questions.

Question Number 1. Before entering PEP, what was your perception about it?

Most of the respondents positively answered that they were excited because they heard that the program was very different from the normal classroom set up. For them, they knew that it would be hard but it was challenging. They were not used to speaking English all the time, so they wanted to grab the opportunity and use it as a stepping stone for them to get employed in Ayala group of companies after graduation, they added.

Meanwhile, some of the respondents answered that their perception was that the program was difficult because of the English Only Policy (EOP). According to them, they were afraid at first because the mentors were from Ayala group of companies.

Question Number 2. Describe your experiences in PEP.

All respondents had positive experiences in PEP. Their responses were the following:

PEP was very nice and interesting because they did a lot of computer based training as well as oral interactions. In the last four weeks of their sessions they did job hunting to practice the skills that they experienced during the sessions.

PEP was absolutely worth it. They wouldn't think they would gain competence in sales delivery, customer service, and technical support in just a span of four months. The experience was challenging because every day, they encounter different role plays and they have to think critically and sometimes think out of the box to meet or even exceed their mentor's expectations. According to them, sometimes they failed but they didn't stop from getting back up again.

PEP had a lot of fun especially with their co-pepters. The accounting simulations with accounting experts also helped them a lot because they gain unparallel knowledge and experiences.

The most important things that they will never forget were the "work habits" that really helped them a lot to face the real world. Practicing these habits every day improved them a lot.

At PEP they felt a different pressure, different from any professors and different from any subjects that they ever had. The feeling was so unique. They were required to speak English as soon as they enter in the PEP room. One of the respondent said "I thought my English was good but I later found out that it wasn't". There were times that they thought they should surrender because of failures but they later realized that with those failures they were able to build their own armor that made them even stronger.

PEP was great specially the first month because their mentors helped them to communicate in English well and correct their English grammar in a nice and not in an offensive manner. They also thought them how to handle job interviews so that they are prepared and ready for it right after graduation and were able to face another chapter of their lives.

PEP provided them real experiences in terms of how to prepare them for their future jobs/careers.

They experienced a real business scenario as marketers. They taught them on how to sell things, how to give quality service and how to communicate well. They also trained them how to do their work properly and make them feel as if they were working in real business field.

PEP is unforgettable. The program does not only train the students to be the best students, but the program trained them to be successful in their chosen field/career someday. This is done thru relevant trainings. The trainings were awesome as they trained as a client not as students.

They experienced many failures during PEP sessions but the good thing about it is that these failures helped them realized the importance of being ready for a job. Things that can't be learn inside the classroom.

It was life challenging with them. They are confident that they have the edge when they go out to the real world.

Lastly they experienced a real work environment.

Question Number 3. After attending PEP, what were the benefits that you got from it?

All respondents claimed that they learned a lot in Sales, Customer Service, Business Communication, Technical Support and Systems Thinking. The program built their self-confidence, enhanced their critical thinking skills, trained them to become responsible, improved their work habits, enhanced their oral and written communication skills, improved their customer relationship, and improved interpersonal skills. They learned to become independent, learned about simple technology trouble shooting and got job offers/opportunities

Question Number 4. What Is Your Assessment About PEP?

The respondents have a unanimous assessment that the program was worth it. Some of the description they gave were: effective, nice, great, perfect, interesting, challenging, very good, the best program that they ever had, extra ordinary and phenomenal. It was a big help for them because it brought out the best in them.

Question Number, 5. What Are Your Suggestions/Recommendations?

The respondents gave the following recommendations:

1. Other students/schoolmates should enroll in the program and grab the opportunity to become one of them.
2. The program should be offered to a bigger number of students so that more students will benefit from it.
3. PEP should be expanded.
4. Training for entrepreneurship should be included in the program, and
5. Make PEP as part of the curriculum so that all students can have the opportunity to take the program because it really helps a lot.

Discussion

Over the past few years, as the system focuses more on holistic professional development, the relationships between professional improvement and staff development have become much stronger (Rennekamp, 1987), as cited by Rennekamp, A. and Nall, M. (2010) Generally, professional development is described as a tool to help an individual grow and develop on his/her job through the combined impact of both organizational and individual efforts. Staff development are the efforts initiated by the Extension program while professional improvement are the opportunities sponsored by other organizations in which participation by extension professionals is self-initiated.

José Rizal University was granted by the Commission on Higher Education (CHED) the official designation of Center of Development (COD) for its Business Administration program.

The continuous drive for excellence has resulted in not only recognition but improvement at the academic front as well. Innovation in instruction and research, linkages and engagement with industry leaders has made JRU among the premier educational institutions in the country.

Furthermore, the University recognizes the growing demand for highly specialized skill-sets among graduates. To meet this demand, the University forged partnerships with corporations like LiveIt and other various sectors of industry. By combining expertise and developing curricula responsive to a constantly changing global market, JRU students will gain pertinent experience and will be equipped with the technical knowledge that will give them the decisive advantage when they graduate.

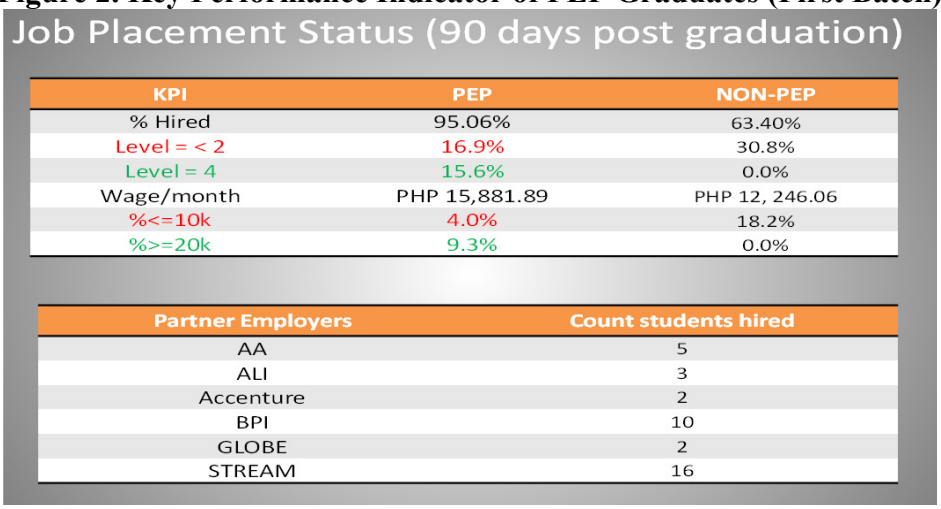
Lastly, the College of Business and Accountancy is continuously redefining its course offerings to meet the demands of an evolving industry as well as to ensure that its programs remain dynamic, progressive, and relevant. This program is designed to train students to take on important functions in business through systematic exposure to specialized knowledge in the major functional areas of business consisting of production, finance, personnel, and marketing. Students will acquire supportive computational and communication skills and become familiar with the business framework which includes roles of government, and the significance of business ethics.

To maintain its status, the administration keeps on tightening its linkages by attracting more companies to tie-up with the university, and one of which is the PEP Program.

The program started last second semester of SY 2012-2013 with an initial total number of 81 participants (all graduating students). The researcher who was also the PEP coordinator during that time requested a report copy to the mentors to be used as basis for comparing the effectiveness of the program in terms of employability compared to the Non PEP graduates, wherein the request was positively granted by the mentors.

Figure 2 presents the employability rate of PEP first batch in which 95.06% were employed within three months, while only 63.4 % of None-PEP graduates were employed within three months. Likewise, the table shows that the starting salary of PEP graduates was higher than Non PEP graduates. The table also presents where the PEP graduates were first employed.

Figure 2. Key Performance Indicator of PEP Graduates (First Batch)



Job Placement Status (90 days post graduation)

KPI	PEP	NON-PEP
% Hired	95.06%	63.40%
Level = < 2	16.9%	30.8%
Level = 4	15.6%	0.0%
Wage/month	PHP 15,881.89	PHP 12, 246.06
%<=10k	4.0%	18.2%
%>=20k	9.3%	0.0%

Partner Employers	Count students hired
AA	5
ALI	3
Accenture	2
BPI	10
GLOBE	2
STREAM	16

Figure Adopted from PEP Files

LEGEND: KPI = Key Performance Indicator (Annual Average Salary, Job Level)
AA = Ayala Automotive (Honda & Isuzu)
ALI = Ayala Land Incorporation
BPI = Bank of the Philippine Island

Conclusion

The result showed that all respondents benefited from the program. They perceived that PEP is extraordinary and phenomenal because it is quite effective, helpful, it enhanced their critical thinking skills, trained them to become responsible, improved their work habits, enhances their oral and written communication skills, improve their customer relationship as well as simple technology trouble shooting, and most of all it open job opportunities for them.

Recommendations

Based on the results of the study, the following recommendations are made:

1. PEP program should be flourished and continued because this is a big help to the graduating students.
2. PEP must be offered to a bigger number of students and to other courses as well because it is really quite good and effective.
3. PEP must be open to all senior students who are willing to take it because they really need to be trained for their future career.
4. Conduct a tracer study of PEP graduates to find out if they are employed in line with their field of specialization.

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Contact email: analiza.viernes@jru.edu

Appendices

APPENDIX A

Survey about "Case Studies of Professional Growth Through the JRU-PEP"

Name:
Course/Section:

Please answer the following questions to the best of your abilty. Rest assured that your answer will be treated as confidential. You can use the back of this page or another sheet of paper if needed.

1. Kindly share your experiences about the following:

    a. Before entering PEP, what is your perception about it?

    b. Describe your experiences during PEP

    c. After attending PEP, what are the benefits you got from it?

2. What is your assessment about PEP?

3. What are your suggestions/recommendation?

Thank you and Godbless!!!

APPENDIX B

RESP.	QUESTIONS # 1: A. Before entering PEP, what is your perception about it?	TRANSCRIBED
1.	Before entering PEP, the first thing that came to my mind is that, it is hard because you should speak English every time and you should wear corporate/proper attire like if you are working. But it all changed when I enter PEP, because I was very inspired because of the instructors/mentors that we had. They are really good and they teach us very well. They tried their best for us to learn the right things that we really don't know	• PEP was hard because of the Speak English Policy. • Inspired because of the mentors.
2.	Before entering PEP, I have doubts about it because most of the person I had talked to before told me that PEP is difficult. Their activities are different from what we're studying from our subjects and more stuff or confusing from those students that whose really don't know what PEP is all about. But of course since I really wanted to know more about this program, I felt the excitement since the first time I entered PEP classroom.	• Doubt • excited
3.	I thought of it as a very tough or hard program, that it has no rooms for mistakes. Others are afraid of taking it because they might fail badly. And so am I, I felt that I am not confident enough to enter PEP.	• Very tough or hard • No room for mistakes • Afraid • Not confident
4.	PEP for me is communication skills training. A program that enhance the capability to communicate well in English and to help your employability after college.	• Communication skills training • The program was a big help for them to employ after graduation
5.	I first encountered PEP when I attended an open event held in JRU open ground last year. My perception was: first the program is not open for all. And second that the training is offered only to chosen students. There were limited slots offered and I was wrong because the program is open for all as long as the students fulfill the requirements.	
6.	Teach and give tips/ familiarize to work environment. PEP will prepare me in a real world. Enhance my skills and boost my confidence.	• Enhance their skills • Boost my confident
7.	I was confused before I entered PEP, because I don't know what the program is all about. I just heard from my classmates that PEP can help to get us a job and can help us to credit our other subjects. At first all I want is to credit my subjects.	• Confused • PEP can help them employ after graduation
RESP.	**B. Describe your experienced in PEP.**	**TRANSCRIBED**
1.	During PEP, well it is very nice and interesting because we did a lot of computer based training as well as oral interaction with our mentors/instructors. In the last four	• Nice • Interesting because of computer based training

	weeks, we did job hunting to exercise our skills that we experience during the session. In PEP they allow us to ask question to clarify something that we didn't understand.	and mentors. • The students will now apply what they learn during the sessions. • They are now ready to do job hunting
2.	My experienced during PEP was great especially the first month of PEP because our instructors helped us to communicate in English well and correct our English grammar in a nice and not in an offensive way that really helps us a lot. They also taught us how to handle job interviews so that we are prepared right after we graduate from college and face the real world.	• PEP was great thru the help of the mentors. • Mentors taught them in a nice way and not in offensive manner. • They learned how to handle job interviews
3.	I gained lots of experiences from PEP, academic experiences but I can feel that the things we're doing here are something that we can apply after our graduation. They basically provided us real experiences in terms of how to prepare us for our future jobs. I failed many times but its fine, others failed too. Somehow we learned from that and even did better.	• Gained a lot of experiences like; academic experiences, preparing for future jobs, failed many times but these failures made them even better.
4.	We experienced a real business scenario as marketer. They teaches us on how to sell, give a good service and communicate well, They also disciplined us as a worker and make us feel as a working in business field.	• They experienced real business scenarios. • Learned how to sell, give good service, communicate well.
5.	The experienced I had in the program is unforgettable. The programs not trained students to be best students, but the program trained students to be successful in their chosen field. This is done thru relevant trainings. The trainings are awesome as they trained us a client not as a student.	• The program trained the students to be successful in their chosen field. • They underwent relevant trainings
6.	I experienced a real world environment. I experienced being an agent and do role play. I learn things that can't be learn inside the classroom. And the experiences that the facilitators share give me inspiration.	• They experienced a real work environment. • Learned things that can't be learn in ordinary classroom set up. • Inspired by the mentors
7.	For me it was a great experience to be part of this program. It really helps me to enhance my skills and confidence. Start from business communication up to application and interview. It felt so good especially the environment that we had at PEP, and when we had a mistake you will not feel that you don't want to do it anymore instead you will motivate yourself to anchor your goal.	• PEP was great experienced starting from the business communication, to the application and until job interviews. • The program helps him to enhance his skills and confidence.

RESP.	C. After attending PEP, what are the benefits that you got from it?	TRANSCRIBED
1	After attending PEP I learned how to troubleshoot problems in customer service, sales delivery as well as technical support even though before I really don't have any idea about those. I learned how to speak well in English and how to pronounce some words correctly as well as the accent. I learned how to answer interview questions appropriately.	• Learned how to troubleshoot, customer service, sales delivery, technical support, speak English well, and answer interview questions properly.
2	The benefits that we got here in PEP are confidence, skills and also those from the simulations that we had undergone during our sales, customer service and technical support that only PEP offers. In PEP we became knowledgeable and competent in some ways.	• They improved a lot in many aspects like; confidence, skills, sales simulation, customer service, and technical support.
3	I already improved my communication skills, and not only that, I realized that entering PEP was a very good decision for me. I now have the confidence in talking especially in applications and interviews. Other skills were also enhanced by this program. I am confident enough that soon I can land to a good job because I am experienced enough from the way they trained us prior to our graduation. I feel that I am elevated enough from other graduating students because I have the knowledge.	• Improved in communication skills. • Gained confidence in application and interviews. • Confident to get a good job. • Had an edge compared to the other graduates.
4.	Compare to other students, we have an edge in communication and marketing skills.	• Confident that they have edge compare to other students in terms of communication and marketing skills
5.	PEP trainings improved my communication and interpersonal skills for employability not only that the training is not only educational, it is also rewarding.	• PEP improved his communication and interpersonal skills. • PEP is rewarding
6.	I gained experience and I am now prepared for the real world. I became more confident in facing the future.	• Gained experiences that prepared him for the real world.
7.	First, I gained the confidence that I am enjoying right now. Second, I got skills in sales delivery, customer service and technical support. Next, it led me to better and bigger opportunities, and from that, I already got a job offer and other companies also invited me for an interview.	• Gained confidence • Got skills in sales delivery, customer service and technical support. • Got job offers and interviews
RESP.	**2. What is your assessment about PEP?**	**TRANSCRIBED**
1.	For me, PEP is a very nice and effective program that really helps graduating students pass and get a good job someday. Not only that, PEP helps students to expand their knowledge about something that they are	• PEP was nice and effective. • It helped the students to expand their knowledge

	not good at, like speaking in English, interaction with customers and giving resolution in technical problems.	in terms of interaction with customers, giving resolutions in technical problems, good in English communication, and even to in getting jobs.
2.	PEP is really a big help for me because even if I still am not a college graduate they helped us find a job for practice, and we got job offers from different companies. That only means that PEP helps us to improve ourselves inside and outside the school. Good job PEP!	• Got job offers from different companies.
3.	All in all, PEP is a very good program for graduating students. PEP is not just a subject to complete; it requires critical thinking and preparedness. It's like a real working environment wherein students got to practice their work habits and behaviors. After graduation, we can definitely apply what we learned from PEP.	• PEP requires critical thinking. • Practice work habits in a real working condition
4.	PEP is broader right now because they adjust to consider other courses to take PEP.	• PEP was broader
5.	PEP is extraordinary and phenomenal. The program is challenging yet rewarding.	• PEP was extra ordinary, phenomenal and challenging
6.	PEP will prepare and build you up with the help of the great, kind and understanding facilitators that help us to be more productive and better.	• Mentors were great, kind, and understanding
7.	For me PEP is really effective. This program can help open job opportunities for the students. PEP also has great facilitators who always provide great learning skills.	• Effective • Can open opportunities for the students • Facilitators were great

RESP.	3. What are your suggestions/recommendations?	TRANSCRIBED
1.	Well, I suggest that students should enroll in PEP because it will help them a lot in life and with their skills and abilities. They will learn a lot that is beyond their knowledge that will help them in their future.	• Students should enroll in PEP
2.	I suggest that you continue to educate students in the future because this program is really helpful for those students who are aiming for a brighter future.	• The program is helpful • Continue to educate students
3.	Maybe PEP can expand the course as a 4 year program so that all JRU students will have the opportunity to be educated the way we did.	• Expand
4.	Consider PEP as a part of the curriculum in all courses because it helps the students be employed in the future.	• Make it part of the curriculum
5.	I suggest the PEP to have trainings that would develop entrepreneurship.	• PEP should give trainings to develop entrepreneurship
6.	Accept more slots. Don't stop helping students face the world. Inspire more students.	• Accept and inspire more students
7.	This program is great. Just continue to expand the course so that the students can access it and if possible, make it a four-year course.	• Great • Continue to expand the course • Make it four-years.

Improving the Reading Comprehension of Bachelor of Public Administration Students Through the Use of Scaffolding Strategies

Gloria M. Capanang, Pangasinan State University, Philippines

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Abstract
With reading as the foundation of all academic learning it becomes imperative that the reading ability of the learners be assessed at the onset. In support of the government and of the university's program on literacy, teachers have developed innovations and/or interventions aimed at improving the reading comprehension of learners. It is in this vein that this study was conducted. It looked into the influence of scaffolding strategies in improving the reading comprehension of Bachelor of Public Administration students in Pangasinan State University during school year 2018 – 2019. Employing a quasi-experimental design, mean scores of the learners in the pretest and post test were computed to determine if there was a significant difference in their performance vis-à-vis reading comprehension before and after their exposure to the intervention- the utilization of scaffolding strategies. Results show that of the 36 total number of students in the experimental group 35 or 97.2% proved to be outstanding and only 1 or 2.8% was found satisfactory. The noteworthy performance of the students in the test affirmed the good there was to scaffolding strategies. It is hereby recommended that a parallel study using scaffolding strategies be conducted to see if it will yield similar results.

Keywords: comprehension, fluency, graphic organizers, literacy, scaffolding strategies

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Introduction

The future success of children, as Van Keer [1] claimed, lies in the ability to read fluently and understand what is read. Undeniably, reading has become an area of concern among the Filipinos in the past decade. The quick and continuous decline in the amount of time Filipinos spend on reading has been mainly observed among its youngest readers. Estacio [2] attributed the decline partly to the surge of electronic media such as the worldwide web, video games and portable digital devices.

The manner by which Filipinos receive information today would give credence to a remark that has once been made about us not being a nation of readers but, a nation of storytellers. Madriaga [3]surmised that ours is a culture of oral history passed on not through the written word but by word of mouth. Information we receive today are sourced out mainly from the television (62 percent) and the radio (57 percent). Moreover, newspapers and magazines are read by only 47 percent and 36 percent of the population respectively, based on a survey conducted by the government in 2003.

Literacy improvement is a high priority of the national government. In this vein it became imperative under the leadership of the former DepEd Secretary Br. Armin A. Luistro FSC to assess the reading ability of the students. This stems from the fact that reading serves as the foundation of all academic learning. The former secretary underscored that it will be a constant struggle for pupils who fail to master basic reading skills at the outset to successfully get through other disciplines. Consequently, this will deprive them of the opportunity to become literate and productive individuals. A student's success or failure in school is in part determined by his or her ability to read. This necessitates that students form the habit of reading to do well in all subjects. Indeed, a student who is a good reader has a better opportunity for greater achievement in class.

It is no wonder then that, where performance of students in the National Achievement Test is concerned, Dr. Yolanda Quijano, head of the DepEd's Bureau of Elementary Education, underscored reading problems as the main culprit for the students' poor performance in the said test. So, how does one increase his/her reading skills to ensure their academic progress is not hampered? There are certainly many methods but as any erudite and well-read person will recommend, nothing beats simply reading a lot at the earliest possible age. Sewjee [4[takes to task the teachers in coming up with a reading program to address the reading deficiencies of the students. More than just addressing the diagnosed reading deficiencies, the reading program in the process and in the long run, purports to up the reading level of the students as Karp [5] pointed out. This necessitates that the most critical elements of the reading program for it to be effective include the right kind and quality of instruction and the right level of intensity. As Hall [6[opined, fluency is vital for students to develop effective reading comprehension skills. Readers lacking fluency spend excessive time decoding, leading to less short-term memory available for comprehension. Students need to be able to decode well, in order to comprehend the text. Likewise, Ingerslev [7] suggests that regular independent reading time be provided for the students to practice the strategies. As pointed out by Dr. Michael Pressley [8], "Reading becomes better with practice, and comprehending becomes better with more reading practice".

It is in the above-stated context that this study was conducted. It looked into the influence of scaffolding strategies as intervention in improving the reading comprehension of Bachelor of Public Administration (BPA) students during school year 2018-2019.

Objectives of the Study

The study looked into the effectiveness of scaffolding strategies in improving the reading comprehension level of the BPA students in its hope to offer a solution to the gaps experienced by teachers and students in reading.

Consequently, the study dealt in determining the influence of scaffolding strategies in the improvement of students' level of reading comprehension. In essence, the results of this study may specifically guide the students and teachers in improving the students' level of reading comprehension through offering creative and quality instruction in reading.

Materials and Methods

Research Design

The research design used in this study was quasi-experimental. A quasi experiment, as Moore posits, established an interventional study used to estimate the causal impact of an intervention on target population without random assignment [9]. It analyzed data through statistics to measure the effectiveness of scaffolding strategies in improving the reading comprehension of BPA students.

Respondents of the Study

The respondents of this study were the 100 BPA students enrolled in Purposive Communication during the school year 2018-2019. The entire population of students were used as the respondents.

Research Instruments

The primary research instruments include the teacher-made reading comprehension test which was validated by five language and reading-teacher experts. It has a 60-item questions. A Table of Specifications was made prior to the making of the reading comprehension test.

Data Analysis

Mean was used to quantify the results of the pretest and posttest. *T*-test was used to determine the significant difference in the performance of the students before and after using the scaffolding strategies.

Results and Discussion

Table 1. Performance in English before Exposure to Scaffolding Strategies

	Frequency	Percentage
0-20	32	32.0
21-40	57	57.0
41-60	11	11.0
Total	**100**	**100**
Mean	21.76	
Standard Deviation	2.69	

Majority of the students (57.0%) performed satisfactorily in the given multiple test prior to the utilization of scaffolding strategies in Purposive Communication. Likewise, the data reveal that there were 32 students (32.0%) whose performance in the test was found poor. Only 11 students (11.0%) proved to be outstanding in terms of performance in the test before the exposure to scaffolding strategies. Apparently, the data corroborate Baird's [10] view on the need for intervention such as utilization of reading strategies to address students' reading deficiencies. Moreover, Mc Cabe [11] suggests the use of pedagogic approaches such as scaffolding strategies to improve students' comprehension of texts read.

Table 2. Performance in English after Exposure to Scaffolding Strategies

	Frequency	Percentage
0-20	0	0.0
21-40	15	15.0
41-60	85	85.0
Total	**36**	**100**
Mean	24.2	
Standard Deviation	2.45	

Results of the 60-item multiple choice test administered to the students in the experimental group after the utilization of scaffolding strategies turned out favorably as evidenced by the data in the table. The results of the posttest show that of the 100 total number of BPA students in the Purposive Communication class 85 or 85.0% proved to be outstanding and only 15 or 15.0% was found satisfactory. The noteworthy performance of the students in the test affirmed the good there was to scaffolding strategies. It afforded the students the opportunity to comprehend what they read after their exposure to scaffolding strategies.

The foregoing findings reflect similar results of studies conducted using interventions such as scaffolding strategies to improve students' reading comprehension and consequently their academic performance. Nederveld [12] concurred how scaffolding strategies led to improved reading abilities and progression in reading level of students.

Table 3. T-test of Difference between Pre-test and Post-test Results

	N	Mean	Std. Deviation	t	Sig.
Pretest	100	21.76	2.69		
Posttest	100	24.72	2.45		
				-4.41	.00002

The significance threshold was set at 0.05.

The data in the table indicated that there was a statistically significant difference in their mean scores before and after utilization and/or exposure to scaffolding strategies. This is because the computed *t*- value is -4.41168 while the *p*- value is .000022 which means that the result is significant at $p<.05$. Thus, there is a significant difference in the performance of the BPA students in English (Purposive Communication) before and after the intervention or utilization of the innovation, the scaffolding strategies.

Conclusions and Recommendations

The results bring to the fore Biggs' [13] assumption that the learners' ability to use reading strategies is the most critical factor determining their reading comprehension and consequently their performance in reading assessments. Elliot [14] however, cautions that there is a need to match students individually to the intervention that shall work best.

All in all, the results of the study underscore the close relationship between strategy use and reading comprehension that shall provide support for the possibility that educators should enhance learners' reading comprehension through reading strategies that target different learning styles of the students.

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Contact email: jagmitsky@yahoo.com

Learner-Led Approach to Teaching

Joel Weinberg, Meiji University, Japan

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Abstract
This paper discusses a different approach to teaching: learner-led approach in education (LED). While there are many interpretations of LED, this paper focuses on students selecting their own research topic, constructing a lesson plan and homework assignment based on that topic, and then leading their classmates in a mini-lecture/presentation about their research. The reasoning for this approach is that students will be more interested in a topic and will learn more about it when they are given the freedom to choose it themselves. Additionally, when they are required to teach what they have learned to their classmates, they will be more thorough in their research and put more thought into the lessons. This will benefit both the student who is leading the lesson, and the other classmates who will be motivated to do their best when their turn to lead the class arrives. There are a few challenges to this approach, particularly the fact that it diverges from students' and teachers' previous experience with classroom dynamics. The unambiguously positive results of this approach, however, point to the benefits of trying something different to promote better learning outcomes.

Keywords: autonomy, autonomous learning, education, learner-led

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Introduction

The goal of teaching is to help students learn, and that learning must be significant, meaningful, and involving. Anything less than that risks wasting the students' time. The traditional top-down approach where the teacher (or department, or school) determines the material to be studied, and then the lesson is led by a teacher, is not the only means of organizing a class. In fact, in some circumstances, it might not even be the best way. A different way to organize a lesson is for the students to teach and learn from each other, while the teacher stands back and monitors the process. This approach might not be appropriate for all students and all subjects, but with the right set of students who are capable to handle this style, the results can be truly impressive. When students teach to their classmates, everyone benefits. The "student-teacher" learns the subject more deeply, and all the members of the class are inspired to do their best when their turn to lead a class comes. Also, student-teachers know how to relate to their classmates and understand what will be interesting, and what vocabulary to use to explain their topic even better than when an adult from a different culture teaches them. Additionally, if the student has personally chosen what topic to teach, there will be more meaningful learning because the topic is more interesting to the student than if the teacher assigned a topic randomly. This paper is an explanation of why learner-led classes are beneficial, my experience with this type of class, what I observed the students' gained, and what challenges are involved.

The Reasons and Benefits of the Learner-Led Approach

The learner-led approach (LED) to teaching is a way to allow and encourage the students to be more involved in their learning process. LED empowers the students to learn what they are interested in, and then teach what they have learned to their classmates. The agency that this approach gives to the students is vastly different from the responsibility required in a typical classroom. Typically, teachers and schools determine what the students will learn, in spite of what actually interests the students. While a truly gifted teacher can make even a boring and difficult subject interesting, unfortunately such creative teachers are not always the norm. The reality of the status quo is that if a student is interested in a topic, that has as much to do due with coincidence as to the teacher's ability to make a class interesting. However, by allowing the students to choose the topic of their research, the teacher is implicitly signaling to the students a higher degree of trust and a larger amount of expectations compared to the traditional teacher-led lessons. In the LED approach, the teacher must step back from the role he or she was trained to do, and pass the responsibility to the students to choose what they want to learn about, and to do their own research into that topic.

The LED approach is intrinsically relatable to the students because it is based on what the student is already interested in. This interest provides the inspiration to do the research and to complete the assignment. When students then teach what they have researched to their classmates, the student-teachers are potentially better able to deliver meaningful information. Student-teachers know their classmates' culture, interests, and lexical abilities better than native English-speaking teachers from a different culture and generation. The student-teacher chooses to focus on specific aspects of topics that are interesting to their own--and their classmates'--demographic. The words and ideas that are targeted in the lesson are selected based on their

relevance to the learners rather than based on a list of vocabulary words that should be learned for a specific grade or for an upcoming standardized test. The tests that are given in traditional top-down classes are based on what the teacher thinks the students should know about the subject, rather than what is organically of interest. This is why LED is a more meaningful learning approach.

LED allows teachers to see where students need more reinforcement of the material. When students are required to lead a class, they need to recall and explain in detail what they have learned about the subject. This gives the teacher a window into what the students have learned, and what they have not. It also increases students' verbal communication, public speaking, and presentation skills. LED gives the students multiple ways to remember and retain the information that they have learned. It provides an inspirational model to the other students in the class, particularly less self-confident and lexically weaker students who draw motivation from the achievements of their classmates. These weaker students realize that they, too, can lead a class. The less motivated students are implicitly reminded that their responsibility goes beyond simply attending classes, and they will need to actually demonstrate what they have learned. Finally, LED will empower the students to present what they know and give them the chance to be in charge. It will bring a sense of pride and accomplishment, especially in weaker, less-confident members of the class (Pak, 2019).

The LED approach is more in accordance with the responsibilities that await the students after they graduate. Learning how to learn about something interesting is a skill that students get from the LED approach, and will benefit them throughout their educational careers, and into their professional lives. The students who master the techniques of autonomous learning will be more independent, confident, and capable than those who are reliant on others to always teach them something new. In this way, LED is not only helping the students learn about the topics they are interested in, it is teaching them skills that are reusable in many different contexts. LED helps them to learn faster and better than the passive learning style that they have grown used to. It causes students to become proactive as it shifts the learning responsibility from the teacher to themselves. Students being taught with the LED approach cannot skirt by with a minimal effort and still achieve passable scores. The traditional teacher-fronted lesson approach where a teacher lectures to the students tacitly allows the students to passively receive information, but not to actively demonstrate what they have learned. The LED approach, on the other hand, requires students to demonstrate what they have learned by teaching it to other students. If they are not able to teach what they have learned, this is a good indication that they themselves have not yet understood their topic. This is an important signpost for both the teacher who is giving the students a grade, as it is for the students themselves to recognize that they have not yet sufficiently acquired enough understanding about their self-selected topics. These are the reasons why the LED method is a more impactful method of instruction.

The Theoretical Basis

Learner-led approaches are not a new or revolutionary concept. LEDs are consistent with Piaget's (1954) constructivist learning theory, because as students do the research for their lesson preparation, they are assimilating new information with their previous information base, and are modifying what they already know to fit with

whatever new information they are learning. The justification for the student-led class discussions can be found in Vygotsky's (1978) sociocultural theory of development. Through these discussions, students are helping each other extend their learning beyond their current level. Discussion sessions can also be seen through the lens of active learning which, as Bonwell and Eison (1991) describe it, includes "instructional activities involving students doing things and thinking about what they are doing." Handelsman et al. (2007) broaden the definition of active learning by adding that, "students [should] do something--read, discuss, write--that requires higher-order thinking" that, "places some emphasis on students' explorations of their own attitudes and values." Thus, LEDs are situated in the field of constructivist learning theory, which draws on active learning strategies.

The Teacher's Role and Concerns

In spite of the benefits that the LED approach provides to students' learning outcomes, one of the challenges of this teaching style is convincing teachers to step back from their traditional role. Iversen et.al. (2015) explain that "student (or self)-directed collaborative teaching and learning is characterized by a teaching approach that aims to give students control, ownership, and accountability over their own education while the teacher acts a facilitator and resource person." Few teaching programs are preparing teachers for this type of role. Even more difficult than convincing new teachers to adopt this approach is the challenge of convincing veteran teachers, supervisors, and school administration officials that there is a better way than what they have been doing for years. The LED approach might be interpreted by the aforementioned as a dereliction of their educational duties. However, if student-directed teaching and learning is to occur, teachers and administrators alike need to be convinced that this method is well-worth teachers relinquishing control over their classes. Some teachers' concerns about this type of classroom merit consideration. For example, there is an element of unpredictability when a student leads a class discussion (Richmond, 2014). Those who are worried about this should recognize that although a student is leading the discussion, the teacher is there to act as a moderator and is sometimes required to step in to redirect a class discussion that is veering off target. Teachers are also correct to realize that because an inexpert student is teaching the lesson, there might be important and relevant issues that are not well covered, and the other students may be getting only "half the story" (portland.edu/blog). Again, this concern can be alleviated by reminding teachers that their role is to ensure that no student misses the facts, and the teacher may need to step in for correction.

Challenges to LED

It is possible that not all students will respond positively to this new dynamic. Young learners who are insecure in their own knowledge or not confident in front of other students might be inhibited by their insecurities. Students from cultures where the teacher is highly respected for her learning might feel inadequate and ill-prepared to take on the responsibilities of teaching classmates. Some students might feel that the teacher should have the responsibility to teach, and the student should only be asked to listen and take notes of what the so-called expert teacher says. There are also legitimate concerns that some students simply prefer to passively absorb information from the teacher, rather than actively pursue the information on their own. With

respect to these concerns, teachers should be reminded that every student learns in his/her own way. Some students may prefer to be passive, but many will benefit in the long run by the LED approach.

Class Composition

My experience with this approach began when I was asked to teach the top level class in my department at Dokkyo University in Japan. The students' English ability was already high so the determination was made by the supervisors of the department that this class was not going to be a typical ESL class. The supervisors wanted this class to be taught essentially as a content course similar to a freshman English university class in the United States. I was not to focus on language learning; rather I was asked to develop a course that allowed the students to use the high level of language that they already possessed. This was a departure from the other classes in the department, and I was given the freedom to teach the class as I saw fit. The textbook that was provided for the course was consistent with the previously stated intention of the class. It was a high-level textbook that contained academic articles, and each unit was organized around a broad theme. For example, Unit 1 was about Cross-Cultural Communication, Unit 2 was about Education, etc. There were 24 students in the class, all of them were freshmen, and several had studied outside of Japan either for elementary, middle, or high school. All of the students were in the class because of their high TOEIC scores and based on their speaking fluency judged via personal interviews with the supervisors of the department. The retiring teacher who previously taught this class in my department assured me that this level was a joy to teach because the students were eager to engage with issues raised in the textbook, and eager to speak English.

Learning by Teaching

My experience teaching content-based courses has always been surprisingly educational; while teaching the course, I have simultaneously learned more about the subject as well. This led me to consider how much learning happens when we teach something to someone else. In order to teach effectively, the material must first be thoroughly understood, then clearly conveyed. If these first two conditions are met, the teaching subject can be learned by students. My supposition was that students would learn more about a topic by researching and teaching it to their classmates than if I did the work for them. This is the difference between active and passive learning. Active learning requires doing something with the information we have, whereas passive learning is simply sitting back and absorbing what someone else is saying. Active learning is more involved and therefore requires a deeper level of understanding than passive learning, where students are simply listening but not using what they are supposed to be learning.

The class was converted into an active learning environment by having the students select a topic from the textbook's theme, research the topic outside of class, develop a mini lesson including a homework assignment for their classmates, and then teach their topic to their classmates with a PowerPoint presentation. In doing so, the hope was that students would become "experts" on their topics. Students would additionally be able to relate to their peers' lessons because it was taught through a similar frame of experience and background. There's a difference between the perspectives that a middle-aged American brings to an issue, compared to that of an

18-year-old Japanese university student. The former is less relatable, while the latter is understandable, relatable, and therefore, motivational. When students see their classmates leading class discussions and giving presentations about their topics, that inspires others to do likewise.

Learner-Led Approach: First Set an Example

The first half of the semester the students learned using the assigned textbook and a familiar teacher-led, seminar format. The purpose was to demonstrate the style of engagement with the text, and with each other, that was expected of the students. Open-ended, thought-provoking questions were asked of the students, and all the students were encouraged to participate. When one or two students dominated the discussions, they were asked to hold back to give other, less talkative, students a chance to join the discussion. Nearly any contribution to the discussion was welcome, even those that were slightly off point. Another goal of these classes was to establish an open rapport where students felt comfortable voicing their opinions and were never told their interpretations of the text were wrong. Students were also encouraged to help each other gain a greater understanding of the ideas raised in the readings. The teaching point was both about the issues discussed in the textbook, as well as ideal methods of engaging with their classmates in an open, honest, and positive manner. Homework assignments consisted of reading the textbook articles and completing the follow up content and discussion questions. In class, students reviewed their answers to the homework questions in pairs, followed by a whole class discussion as a summary of the broader ideas that were brought up in the students' pair work. Students were discouraged from one- or two-word answers, and challenged to expand their ideas with more depth. This approach aimed to bring about greater clarity of thought and a deeper, more nuanced understanding of the text.

Choose a Topic Within a Theme

Beginning at the seventh-week of the semester, after demonstrating how students were expected to interact with each other, I stepped back from my usual approach. I no longer led the class discussions, and instead each student had the responsibility of standing in front of the class and instructing their classmates about an issue that appealed to them. This was the first time many of the students had ever experienced such an approach and many were understandably nervous. To prepare for this assignment, the students first had to decide what aspect of the broader theme they would like to research. They then submitted a topic proposal that I either allowed, or asked the student to refine. Most of the topics were acceptable, however if a student proposed an idea that was already chosen, or if the idea was not appropriate or consistent with the theme of the course, I gently redirected the student by making suggestions about possible topic revisions. In the first semester, the textbook's broad theme was Cross-Cultural Communication, and examples of students' topics included cultural differences such as sarcasm, personal space, apologies, and stereotypes. The second semester's theme was Education and the students chose to narrow the theme by researching home schooling, coeducational schools, public versus private education, school uniforms, gap years, and the difference between rote learning and experiential learning. All of these topics the students chose themselves based on their own interest in the issue.

Gather Information Through Research

After the students selected their topics, they had to find and submit three academic articles about the topic. At least two of these articles were required to be in English. If any of the articles were off-topic or not academic, students were instructed to replace it. The purpose was to learn as much as possible about their topics before they created a lesson. The students then chose one of their three articles and used that as the basis for their lesson. They were required to create a PowerPoint presentation of around 10 slides for their lesson which was to be roughly 25 minutes. The students first sent their PowerPoint presentations to me so that I could check them for thoroughness and accuracy. Any problems were amended before the actual presentation. In addition, the students sent their lesson's article to their classmates in advance, along with homework questions they constructed so that all their classmates could prepare for the class. The homework questions consisted of 3 vocabulary questions, 3 content questions, and 3 open-ended discussion questions. All of the homework assignments were sent to me so that I could assess what the students were learning from the materials they chose, as well as understand how the students' lessons were going to be conducted. When the students finally presented their lessons, I had already made sure that their topics were appropriate, their materials were academic, their PowerPoint presentations were on target, and their homework assignments for their classmates were thorough.

Establish Lesson Parameters and Strengthen Weak Points in Advance

All students' lessons had to follow a few guidelines. The target length was between 25 and 30 minutes, the PowerPoint presentation should have roughly 10 slides, and the slides themselves should serve as a visual aid to help explain the lesson points. Some inexperienced presenters made text-heavy slides where every word of their presentation was written. These slides were corrected before the presentations so that the presenters did not simply read the slides to the audience. Other observed problems with some PowerPoint slides were too many numbers or incomprehensible graphs. Students learned that the slides should not be confusing and instead should help the audience understand the lesson ideas. Finally, a few students needed to make changes when their presentations used cartoonish pictures which were not appropriate in an academic context.

Evaluations of Students' Lessons

The students' lessons were generally very good. The first semester's lessons were not as solid as the second semester, but this was to be expected, and also demonstrated how the students improved with experience in the second semester. Students were nervous in the first semester, but were less so in the second semester; the presentations were more complete, informative, interesting, and organized in the second semester as well. It was clear that students understood the material that they researched based on the content of their presentations and the quality of their homework questions. Most students managed to generate dialog around the issues of their lessons, and there were no major failings from anyone. Students didn't always have the correct understanding of the text to answer to a question immediately, but with some steering and guidance, students came to a more correct and fulsome understanding as a group. One area where students could improve was their

reluctance to challenge each other during their discussions. Perhaps students did not feel confident enough in their own understanding to correct their classmates' answers. There is also a cultural difference in the way Japanese students are used to interacting in a class. Whereas I prefer using the Socratic method of asking leading questions that steer the students to the lesson points, most Japanese instructors use a top-down teacher-fronted method that does not allow for much wrestling with the issues. In Japan, the teacher is the authority and the students don't question it. The classes are not intended to be open-ended discussions, rather they are teacher-centered lectures. After experiencing this type of learning environment their whole lives, this is a difficult dynamic to change in only two semesters.

Student Reflections

The last part of this assignment for the students was to write a self-assessment of their learning and performance. In an essay of 600 words, they explained what they learned through their research and reflected on the experience of teaching to their classmates. Specifically, they were asked to consider whether they felt they learned more about their topic by teaching it to their classmates, or if they felt they would have preferred to have the material lectured to them. By a nearly unanimous decision, the students believed that they learned more by doing the research themselves, creating a lesson, and presenting what they learned to their classmates. Nearly all of the students said the experience was more difficult than what they had been used to, but that they were grateful for the new learning opportunity. Quotes from 10 different students' self-reflection essays are included in the appendix.

Conclusion

The learner-led approach in education (LED) has many benefits. Firstly, it allows students to have more say in the material they want to learn about. Within the broader scope of a course's themes, there are potentially countless topics that will interest the students. Teachers do not need to limit the students to a particular topic that may not hold any interest for them. By allowing the students to choose the topics they will learn about, the material will be intrinsically meaningful and they will be less likely to become bored with their classes. Students will choose topics that are relevant to their lives and this will make learning more lasting and interesting.

The next way that LEDs help students is by giving them a chance to learn about a subject more deeply than they otherwise would if a teacher taught the material to them. By preparing a lesson about their topic, they are obliged to consider what is significant about their topics, what will be interesting, and what vocabulary and concepts are unknown to their classmates and need clarification. This forces the students to see the issues from a new angle and to break down the topics into meaningful segments that will be understood by everyone.

Another way that LEDs are useful is that students can demonstrate what they have learned through the course of their research. Active, rather than passive, learning forms deeper connections in the students' minds. By making presentations, the students are learning as they are showing what they have learned. Also, rather than taking a test, students can show their teachers what they have learned both verbally (in their presentations), and in written form (via the homework assignments they

create for their classmates and their self-assessment essays). Teachers who assess the students can use these assignments to get a more well-rounded understanding of what the students have learned, compared to one-dimensional answers on a test that is often only representative of the material the teacher has chosen to teach. Students can demonstrate that they have learned material beyond what might be expected and asked on a written exam.

LEDs also challenge students to improve their public speaking and presentation skills, which are activities that will be useful in many other academic and professional contexts. These presentations will be useful to other students in the class because they will provide a helpful, motivational model and establish a standard for other students to emulate and even improve upon. Student presentations can also help lower the affective filter of weaker students in class by demonstrating what can be achieved through effort and hard work. Rather than a teacher encouraging students to "try their best," when classmates demonstrate such an effort, it can be more meaningful, inspiring, and helpful in overcoming any fears of public speaking. Students also have a good sense of what material will be interesting to their age group and cultural identity. Instead of a grownup from a different culture and age demographic, LEDs more accurately reflect what the students need and want to learn about. There are numerous advantages of LEDs over traditional teacher-led classes. Teachers and students alike benefit when this alternative approach is utilized.

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Contact email: weinbergjoel@meiji.ac.jp

Appendix

Student A:

"There is a lot of information which I found but did not show so I learned more about my topic compared to having a person teach the lesson to me."

Student B:

"I was able to learn new vocabulary and re-think a lot of benefits and negative points. Furthermore, I had to provide reading and discussion questions, so I had to consider what questions I could ask from the article."

Student C:

"I had to read many materials and understand what the author said perfectly. Thus, I was able to get new vocabulary and re-think a lot of benefits and negative points in each type of school with information on the internet and my experience. Furthermore, I had to provide a vocabulary quiz, reading questions, and discussion questions, so I had to consider what questions I could make from the article. Therefore, teaching my lesson to classmate was more beneficial for me."

Student D:

"I was **actively involved** in the research so it was more **interesting** than attending class and doing homework."

Student E:

"Researching what I wanted was **more enjoyable** than what someone or some textbook forced me to do."

Student F:

"...giving a lesson is more fun than a typical class because there is no opportunity to tell something for 20 minutes, and we can learn different topics each student lesson. Although it is hard to prepare a lesson, it was beneficial for us."

Student G:

"I felt responsibility to give a dependable lesson. If my information is wrong, that is irresponsible. I think it is important to understand contents deeply to explain and that makes presenters learn more information."

Student H:

"If we are only taught, we can only passively study. In order to teach something to others, we need to search and investigate it much more. Searching and investigating it led us to understand it more deeply."

Student I:

"To make a class successful, I had to do many things such as reading books, researching on the internet and hearing some experiences from friends or parents. That takes time and effort, but the more time I spent, the more familiar with the topic I became and understood deeper."

Student J:

"Knowing the topic itself did not allow me to teach a lesson. It was also necessary to **simplify some difficult parts of the topic by paraphrasing big words so that my lesson was understandable.** I understood that teaching to learn is **very effective**."

These 10 students are representative of what nearly every student wrote. It was satisfying and encouraging to read these opinions. Active learning requires the students to take more responsibilities and the students had never been asked to do this type of project. I was pleased to see that 22 out of 23 students recognized how beneficial the learning experience was, and these students will be more confident in English as a result.

Using Analytics to Uncover Early Determinants of Academic Performance for Adult Learners

Chong, S., Singapore University of Social Sciences, Singapore
Lee, Y. H., Singapore University of Social Sciences, Singapore

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Abstract
By and large, the arrival of the digital age have accelerated the development of analytics to guide data-informed efforts in teaching and learning. This has also transformed the way how higher education institutions look to optimize student success. In this study, through the use of data mining techniques, the university gained a better understanding of variables that influenced the adult learners first year academic performance. In particular, the results from the CHAID (or Chi-squared Automatic Interaction Detector) model highlighted the importance of previous academic performance and behavioural variables such as credit units taken and withdrawn in predicting learners at risk. The findings resonated with the opinion that an adult learner may find it challenging to juggle the demands of higher education, work-life, and family-life concurrently, at the onset. Henceforth, this group of struggling adult learners may benefit from a better management of course loading, as early as possible.

Keywords: Data mining, academic performance, data-informed efforts

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Introduction

There is a growing diversity of learners pursuing higher education (McLaughlin, et. al 2013). The fastest growing population is the working adult learner (Chong, Loh & Babu, 2015). This is significant, as more and more adults who have been out of school for some years are turning to higher education institutions to start, continue or complete undergraduate or graduate degrees. These working adult learners are no longer in a traditional learning environment and they have the option of taking varied paths to degree completion (Moore & Shulock, 2009). Higher education institutions have to address this growing population to maximize their potential and retain the optimal number of students.

Higher education plays a fundamental role in creating competitive advantage for the society. While societies are increasingly dependent on skilled and talented workforce, many are facing population changes. Education in Singapore is facing challenges of rapidly changing demographics. Society is aging at the same time that the birth rate is falling (Singapore National Population and Talent Divisiion (NPTD), 2013). A key pressure felt throughout the educational system is the increasing participation rate of non-traditional students.

The ease of data collection and advances in information technologies, such as storage capability, processing power and access speed, has enabled educational institutions to accumulate vast amounts of data. A significant amount of data/analytics-driven activities has been undertaken in higher education. A key goal of analytics in education is to transform and improve teaching and learning by the use of data (Pinnell, Paulmani & Kumar, 2017). A report by a US think tank for Center for Data innovation has reproduced a paper advocating a vision for "data-driven system" for education and how through the enhanced use of data to significantly improve how educators teach and how educational administrators manage (New, 2016). The study presented in this paper, through the use of data mining techniques, helped the University gain a better understanding of the variables that influenced the adult learners academic performance.

Considerable research has pointed to the importance of identifying risk factors of higher education learners as early as possible, since early identification can lead to early intervention and increasing the likelihood of success (Upcraft, Gardner & Barefoot, 2005). Entering characteristics accounted for the greatest contribution to retention to the second year of university (Fursman, 2012). Research directs our attention to the importance of the first year of university as critical to the likelihood of undergraduate degree attainment--as the greatest attrition rate occurs before the second year of university (Adelman, 2006). With adults constituting an increasing portion of today's student body, it is important to find out how we can better support their learning. The key direction of this study is to develop predictive model to identify early predictors of academic performance of adult learners who are enrolled in blended undergraduate programmes. This paper, a subset of the study, focuses on identifying variables to predict at-risk adult learners at the end of 2 semesters with the university.

Review of Literature

Learning analytics and data mining have emerged in the growing abilities of educational institutions to capture a rapidly increasing amount of data to "develop models for improving learning experiences and improving institutional effectiveness" (Huebner, 2013). The process is often initiated without any preconceived hypothesis, adopts a data analysis methodology (Tiwari, Singh & Vimal, 2013) and is often interchangeable with the term knowledge discovery in databases with the aim of obtaining insightful and useful findings (Giudici, 2013). Kovacic (2010) constructed prediction models on students' success based on enrolment data with statistical techniques such as CART (classification and regression technique) and QUEST (quick, unbiased and efficient statistical tree). He concluded that classifying students based on pre-enrolment data helps to identify students who may be at-risk and based on his findings he recommended orientation, advising and mentoring programs to support these students.

The literature also indicated that these learning analytics or algorithmic approaches towards predictive modelling could provide more insightful findings vis-à-vis traditional statistical modelling approaches (Li, Nsofor & Song, 2009; Bogard, James, Helbig & Huff, 2012). Amburgey and Yi (2011) says that the primary goal of data mining should be to use the data collected at colleges and universities to predict outcomes. These approaches allow the higher education institutions to analyse individual's potential for success. Such predictions are useful to identify and support students with appropriate interventions to improve their academic performance.

Methodology

In this paper three groups of variables are used – (1) student information such as gender, age, race, years of working experience, (2) academic information such as prior academic institution, prior academic performance (including O-Level English & Mathematics grades), as well as, (3) student-level data up to their 1st semester of study at the University such as their 1st semester (SEM1) GPA, proportion of credit units completed and withdrawn in their 1st semester. The approach undertaken in this study is directed by the Cross Industry Standard Process for Data Mining (or CRISP-DM framework), and is summarised in Figure 1.

The dataset comprises of 1,912 student records from the same intake year. The variable of interest (or the target variable[1]) is a derived dichotomous variable called Semester 2 at-risk based on the Semester 2 semestral grade point average (SGPA). To derive this target variable, students who obtained a Semester 2 Semestral GPA (SGPA) score of less than 2.3 is defined as '1' while those who obtained a Semester 2 GPA score of 2.3 and above is defined as '0'.

The main bulk of the time expended in the data preparation stage is on the treatment of missing values from the input data, as well as, deriving new variables such as the

[1] Students who have performed below 2.3 GPA (out of a 5-point grade) in their 2nd semester denoted as '1' indicating the student is at risk, otherwise '0' indicating the student is not at risk.

relevance of diploma to current degree programme. Both of which, may influence the results of the modeling.

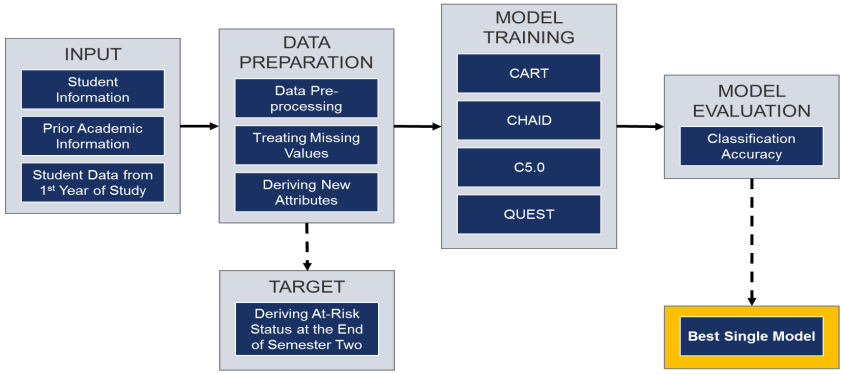

Figure 1: Predictive Modeling Process Flow

The IBM SPSS Modeler is used on the data to find a classification model to predict Semester 2 At-risk. Model development started with the building of a baseline reference model using the CHAID, Neural Network, C5.0 and CRT algorithms. Numerous decision tree-based algorithms were used in the model training stage to assess the importance of the input variables in relation to the variable of interest. Out of the few algorithms, even though the Neural Network model offers the best performance statistics, it did not offer information that explained the inner relationship between factors within the model. The C5.0 model appeared over-fitted with a complex tree that terminated with a large number of child nodes that impacted its interpretability.

The final decision tree model chosen for this study is a CHAID (Figure 2). The model was then evaluated for stability using the 10-fold cross validation method. The CHAID model with an in-sample accuracy of 74.3%, sensitivity of 69.7% and specificity of 73.4% in predicting students being at-risk at the end of Semester 2. In cases where instability is detected, the research team studied the dataset and the probability plots to identify outliers. Once outliers were identified and accounted for, a stable CHAID model was derived.

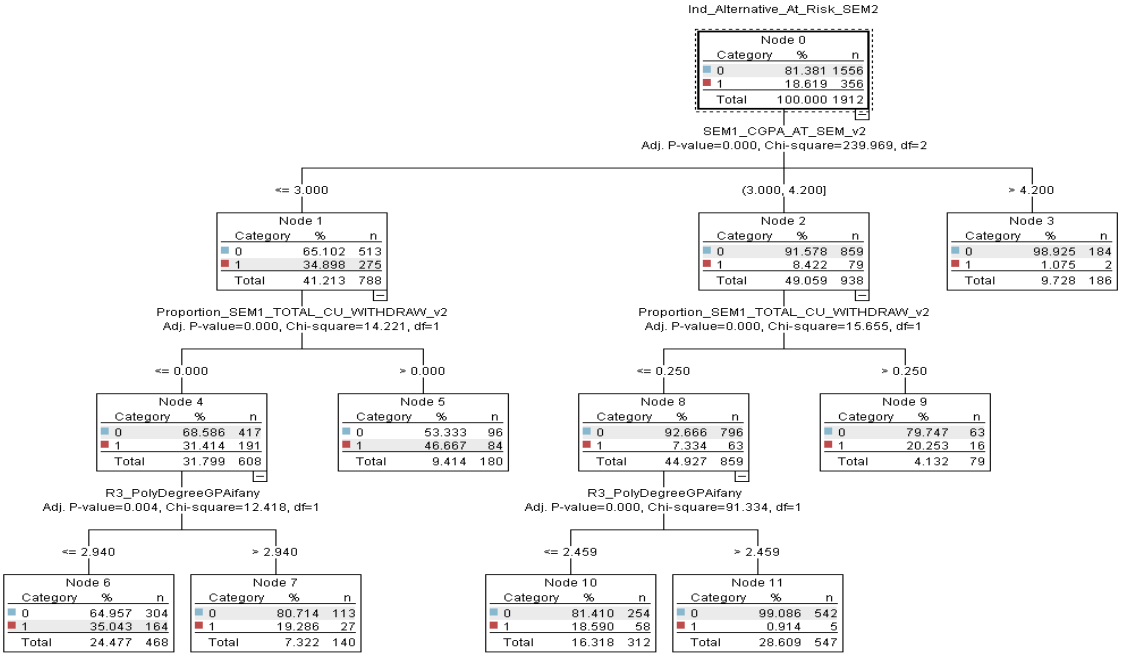

Figure 2: Decision Tree Visualisation (CHAID)

The structure of the chosen CHAID model is broadly summarised in Table 1 below.

Table 1: Summarised Structure of the Sem2 at-risk model

1st split criterion : SEM1 SGPA	≤ 3.00 (low band score)			3.00 to 4.20 (mid band score)			>4.20 (high band score)
Probability of Sem2_Outcome = at-risk	0.349			0.084			0.011
2nd split criterion : Proportion of Sem1 CU Withdrawn SGPA	≤0.00		>0.00	≤0.5	>0.25		No further split
Probability of Sem2_Outcome = at-risk	0.314		0.467	0.073	0.203		
3rd split criterion : Poly GPA	≤2.94	>2.94	No further split	≤2.46	>2.46	No further split	
Probability of Sem2_Outcome = at-risk	0.350	0.293		0.186	0.091		

Conclusion

As explained earlier, the choice of using decision tree-based algorithm was due to its explanatory power. The decision tree visualization (see Figure 2) allows end users (including programme administrators, educators, and researchers) to evaluate the impact and interaction of the variables in a more intuitive manner.

The selected decision tree shows that adult learners who had not performed so well (those scoring lower than 3.0 GPA) in their 1st semester, and who had also withdrawn credit units (CU) during their 1st semester, were more likely to be at risk in the 2nd semester. The variable Proportion of Semester 1 CUs withdrawn may be a proxy to whether the adult learner is able to cope with the study load. This might be an indication of early signs of distress in these adult learners, in managing the pace and demands of the curricula in the University. On the right side of the decision tree, adult learners who had performed much better (those scoring higher than 4.2 GPA) in their 1st semester, were observed to be highly unlikely to be at risk in their 2nd semester.

As these adult learners are part of a growing population, it is important to keep their constraints, needs, and goals in mind when examining the quality of their educational experiences. These adult learners may require different kinds of support than their traditional-aged peers in an undergraduate programme. Their needs and constraints may be completely different from those of traditional-aged students; therefore it is important to consider their experiences to ensure the support of all students' success.

This study has provided insights to understanding and facilitating adult teaching and learning. Certainly, given the nature of adult learners enrolled in the programmes, some changes to be considered may include minimising the course loading for learners who are more likely to be at risk. Academic advisement may include coping strategies as well as registering for a manageable course load, especially if the adult learner has to balance studies with work and family commitments.

Admittedly, there are other variables that can help to better explain the adult learners' performance. As such, further studies can consider the impact of nature of a job, the job size, distance to and fro workplace, family nucleus, and other measures of intellectual capacity such as reading and critical writing skills, if desired. Other decision trees and ensembles of models can also be explored as educational institutions need to employ data mining for effective decision making, efficient operations and to improve teaching and learning (Koh & Chong, 2014). No one theory or study explains all of the individual and institutional variables that contribute to student persistence and success. Tinto, one of the leading researchers on student retention, stated "despite our many years of work on this issue, there is still much we do not know and have yet to explore." (Tinto, 2012, p. 2).

A longitudinal study to track these learners can also provide further insights on variables that can support adult learning. Future research could also consider other psychosocial factors that might predict adult learners retention and attrition in higher education. Aside from enhancing the accuracy of prediction, one of the directions for future research could be focused on using the data collected to identify and develop the support systems for teaching and learning.

A natural follow up to this study is one that looks at predictors of retention of adult learners. Once enrolled, what is the University doing to retain them? Older retention studies may not be representative of today's diverse student population in higher education (Tinto, 2012), a study of persistence and access is essential as we want our adult learners to have a positive university experience and to complete their academic goals.

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Contact email: sylviaChong@suss.edu.sg, leeyh@suss.edu.sg

Replacing Traditional Classroom Teaching with Blended Learning: Is it Effective in Improving Business English Vocabulary?

R.P. Dharmawardene, University of Colombo, Sri Lanka

The IAFOR Conference for Higher Education Research- Hong Kong 2019
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Abstract
As adult English language learners enrolling in the one year Business English Diploma course in the University of Colombo find it challenging to achieve the outcome of improving business English vocabulary, we explored whether different delivery modes (of face to face, online and blended) influenced this outcome achievement. Three tutors of English taught the same content to three groups of students using face-to-face, online and blended modes over 3 months in the Department of English Language Teaching. With the face to face mode continuing as a control group (n=15), the blended (n=15) and online (n=15) groups received six online modules and four quizzes on vocabulary. While the online group received materials online with no face to face instructions, the blended group received 70% of the materials online with six face to face lessons to cover up the balance 30% of the course. The control group learned only in their class rooms. While the three groups showed the performance as Blended mean score=43.07, Online mean score= 39.27, Face to face mean score =45.00 at the pre-test having sixty fill in the blank questions in dialogue completion, the course-end test showed the blended group participants to have scored significantly increased marks (mean score=51.20, t=-7.176, p=.000), compared to the other two groups (Online= 47.60, t= -5.593, p=.000, Face-to-face=50.67, t= -5.330, p=000) at the significance level $p < .005$. This study can have implications for teaching business English vocabulary in the context of teaching English as a second language in Sri Lanka.

Keywords: Online learning, Blended learning, English as a second language, Face-to-face learning, Higher education.

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Introduction

Learning Business English has become crucial for working adults in Sri Lanka at present than any other time. Although some business professionals are with great abilities and intelligence, they are usually judged in their society on how well they speak and write in English. Targeting working adults, many Universities in Sri Lanka have started offering weekend Business English courses. Many of those courses are designed to equip adult students with business communication skills and expect students to improve their business vocabulary. Most of those courses are conducted in face-to-face mode in traditional classroom settings while a few of them are conducted in fully online mode. This study investigated how effective it would be if blended mode of delivery was introduced instead of fully online or face-to-face courses in teaching business English vocabulary to adult learners in Sri Lankan University system.

Although technology aided instruction can contribute to the improvement of English as a Second Language (ESL) students' proficiency (Lizzio et al, 2002), the traditional face-to-face teaching is still reported to be able to outperform online teaching because it attracts and creates interest in students (Garson, 1998). However, according to Driscoll (2002) blended learning mode, a mode of delivery that combines online digital media with traditional classroom method can be successfully applied in adult's learning in many disciplines.

Methodology

The main objective of this study was to compare adult students' performance in using correct business vocabulary in the blended learning (BL), face to face and online modes of delivery. The setting was made at the Department of English Language Teaching (DELT) at the faculty of Arts in the University of Colombo (UOC). The sample of this study consisted of 45 students, both male and female, (age: 21 to 54 years) who were randomly selected from the students who passed the placement test and registered to follow the online Diploma in Business English course for the year 2018 at the DELT, Faculty of Arts, UOC, Sri Lanka. The students were randomly assigned into three groups and instructed to complete six course modules of vocabulary in three different modes of learning, blended, face-to-face and online over three months. The online and blended learning courses were delivered using a Moodle based learning management system. The same online exercises on vocabulary were distributed in printed version to the participants in the face to face mode. The entirely online group studied the content online and they were not given instructions in a physical learning environment. BL group followed 70% of the course units online and the balance 30% in their face to face classrooms.

Study Group	Strategy utilized in teaching vocabulary		
	Course Content	Practicing materials	Assessment criteria
Online	Six modules on vocabulary learning and a lecture note on effective communication skills were uploaded to the LMS. No face to face instructions were given. Access for all materials uploaded to the LMS was granted for all participants.	Four online quizzes and six online activities on vocabulary practicing. Six online modules on writing with new vocabulary and dialogue completion. Online chatting with the tutor.	Pre and post test which included 60 questions on correct vocabulary usage. Tests were conducted in the regular classroom.
Blended	Six lectures face to face on vocabulary development, each two hours duration. LMS access was given to follow 70 percent of the course materials uploaded. The rest was to be studied in the face to face classroom.	Four online quizzes and six online activities on vocabulary practicing. Six online modules on writing with new vocabulary and dialogue completion. Online chatting with the tutor.	Pre and post test which included 60 questions on correct vocabulary usage. Tests were conducted in the regular classroom.
Face to face	Six modules on vocabulary learning were taught in the class. A lecture on effective communication skills was delivered in the face to face class. No online access was given to the participants.	Four online quizzes and six online activities on vocabulary practicing were conducted in the class using printed handouts. Six modules on writing with new vocabulary and dialogue completion were also done using printed materials in the face to face mode.	Pre and post test which included 60 questions on correct vocabulary usage. Tests were conducted in the regular classroom.

Table 1: Strategies used to teach the three groups

Three Tutors of English who have similar level of experience in teaching with the same educational qualifications were assigned to teach to three groups of students. The researcher hypothesized the same level of outcome from all three groups at the

end of the course. The data was analyzed using paired sample t test in the SPSS Version 20.0.

Results and discussion

The study results show that there is a significant difference between the mean scores of the pre and post tests conducted for each group of participants (Blended mode= 8.133, Online mode=7.400, face to face mode=5.667). However, the improvement of the participants who learned business vocabulary through the mode of blended learning was the highest (Mean = 8.133) compared to their counterparts.

		Paired Differences					t		Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	BLpre - BLpost	-8.133	4.389	1.133	-10.564	-5.703	-7.176	14	.000
Pair 2	OLpre - OLpost	-7.400	5.124	1.323	-10.238	-4.562	-5.593	14	.000
Pair 3	F2Fpre - F2Fpost	-5.667	4.117	1.063	-7.947	-3.387	-5.330	14	.000

Significance level p < .005

Table 2: Paired Samples t test of the three groups

The result of this study is contradictory to the results presented by Adam et al (2015) after studying two sections of an introductory microbiology course that was taught in hybrid and traditional methods. In his study, one section was taught through a hybrid (BL) format and the other through a traditional (face to face) format. Students were randomly assigned to the two sections. Both sections were provided with identical lecture materials, in-class worksheets, in-class assessments, and extra credit opportunities; the main difference was in the way the lecture material was delivered-online for the hybrid section and in person for the traditional section. Analysis of final grades of his study revealed that students in the traditional section did significantly better than those in the hybrid section ($p<0.001$) which shows the opposite results of the present study.

When performance in the two sections of Adam's study was compared for each class year separately, the differences were only significant for second years ($p<0.001$); freshmen, juniors, and seniors did not perform differently in the hybrid versus the traditional section. An anonymous midterm survey had suggested factors are likely contributing to the overall lower success of students in the hybrid section: some students in the hybrid section had not taken lecture notes and/or use the audio component of the online lectures, suggesting minimal interaction with the lecture material for these students. However in the present study, participants in the blended group were keen on attending face to face classes while actively interacting with their peers and Tutors online.

However, one of the most recent studies conducted to see the effectiveness of using the blended mode instead of the traditional face to face mode in teaching Science, Technology, Engineering and Mathematics education with pre-university science students in Canada (Bazelais, 2018) shows the similar results to that of the present study. It reveals that the students in the blended group perform significantly better than their counterparts.

Conclusion

The findings of the study provide evidence to support the fact that the blended mode can be successfully used to support students to improve their business English vocabulary. The results of this study will be of use to the authorities of Higher Educational Institutes including Universities that expect to commence or continue Business English courses with blended mode of delivery. In addition, through the findings of this study, the future adult students who wish to upgrade their knowledge in business English Vocabulary by following an English course in blended mode would be highly benefitted. The same study can be replicated in a different setting at a different time or for different subjects in order to compare the outcome of different pedagogies.

Raw data were generated at the University of Colombo in Sri Lanka. Derived data supporting the findings of this study are available from the corresponding author on request.

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Contact email: ruwini@delt.cmb.ac.lk

Bridging Technological Uncertainties: Fostering Globalized Higher Education

Maria Theresa Pelones, Mindanao State University & General Santos City, Philippines
Aida Docena, Mindanao State University & General Santos City, Philippines

The IAFOR Conference for Higher Education Research- Hong Kong 2019
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Abstract
Quality education plays a pivotal role for faculty in pursuit of technological advancement to become competent, resilient, productive and globalized individuals in this volatile, uncertain, fast-changing, and ambiguous world of education. The digital divide is getting wider and failure to meet the demand would mean deepening the gap between learners, students, and its learning environment. In General Santos City, the Philippines the study dwells on how the tertiary schools both private and state university is taking the challenge in providing adequate technological equipment and globalized competent faculty ready to embrace the 21st-century schools. The study revealed that the ratio of school and computer laboratory is 1:4, with an average of 110 computer units per laboratory and with 10 regular laptops intended for faculty use in ICT classroom integration. The laboratories have adequate technological equipment and facilities which are necessary for the full functioning of the computer operations & programs. In terms of connectivity, tertiary schools have an average of 100 units connected to the internet with a speed ranging from 30mbps-100mbps only and were connected using Fiber optic. faculty in the tertiary was also found to be moderately competent in basic computer literacy and ICT integration in the classroom while they are highly competent in information literacy. It is evident that most of the tertiary schools don't have specific continuing programs or short courses for faculty instead capability building needs to be requested or organized by the group or department who would like to undergo the training.

Keywords: ICT Infrastructure, ICT Competency Level, ICT Integration

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Introduction

Technology is transforming how we live, work, play and think. Education needs to equip young people to thrive in tomorrow's work by laying its foundation in preparation for the industrial revolution. Education is needing new skills that may help faculty manage formidable tools that are to be used to technology and creatively design lesson that integrates technology in the classroom. In pursuit of technological and globalized education, SEAMEO (2018) averred that in the 21st century the world changes fundamentally by the rapid development of ICT and encourages people to invest in ICT and Media Literacy skills. faculty in pursuit of technological advancement to become competent, resilient, productive and globalized individuals.

However, Global investments in ICT have been initiated to improve the learning and teaching of the school. Despite all these investments on ICT infrastructure, equipment and professional development to improve education result revealed that there is only little evidence of ICT adoption and use in teaching and learning;

In General Santos City, Philippines higher education both the public and private universities and local colleges are addressing the challenge of enhancing the faculty's ICT skills and infrastructure to become adaptive to technological change. The study aims to answer (1) the existing status of the Information Communication Technology (ICT) infrastructure; (2) the ICT competency level of the faculty and (3) the deterring factors that hinders the effectiveness of integrating of ICT in the classrooms in selected Higher Education Institution in General Santos City. The study adopted a mixed method of research specifically both the quantitative and qualitative approach to evaluate the status of ICT infrastructure and ICT Competency Level of faculty in Higher Education Institutions last February 2017 to October 2017, The study selected leading local public and private universities and a college in General Santos City, Philippines with a total of ninety-nine (99) randomly selected faculty. It employs a survey questionnaire, in-depth interview and focuses group discussion. The data were collected, analyzed and interpreted using descriptive statistics and thematic analysis for qualitative.

Existing status of ICT Infrastructure of selected higher education institutions.

The tertiary schools have an average of 4 computer laboratories with an average of 207 desktop computer units (48 computer units per laboratory). It has an average of 3 laptop units solely used for ICT integration in the classroom, Schools has slow internet bandwidth with 30 Mbps-100mbps only. Both the private university and college have an adequate number of peripherals, equipment and multimedia devices used in the classroom as compared with the public university particularly those equipment used for editing tools. During the interview, it was mentioned that public universities don't have enough funds to supplement the necessary equipment and facilities for an ideal ICT classroom. Holler V., Harvey, S & Magnotta, M. (2006) averred that electronic technology like internet, audio, video, bulletin boards, webcasts, online learning web-based learning, and computer-based.

Most of the operating, utility and program package software used Microsoft applications and open-source software like Linux. It was observed that both public and private universities have no enough authoring tools installed on the computer. For

utility software, all of the laboratories were equipped with antivirus, backup files, firewalls, compression, and data recovery. For package programs, Microsoft package applications and open-source software were installed MSWord, MSExcel, MS Powerpoint, MSPublisher. This was followed by tools like Photoshop, Microsoft Access, Dreamweaver and uses Java, PHP, SQL and Visual Basic for programming. However, it was revealed that all schools don't have authoring tools installed in the classroom. Lynch (1998) mentioned that technology infrastructure intensifies the use of skills in word processing, spreadsheets, basic computer and internet operations and knowledge of programming language. This was supported by Cennamo, Ross, and Ertmer (2010) purports that learning skills require ICT competencies and proficiency to handle educational software. They also suggested that schools should provide a continuous professional development program and supports the mechanism necessary in enhancing the 21st-century learning skills of both the faculty and students. Likewise Williams (2003) described ICT integration as a means of using tools like internet, e-learning technologies, CD ROMs and etc to assist the teaching and learning.

ICT Competency Level of the Faculty in Selected Higher Education Institutions

The goal of technology is not only to prepare the learners into the workforce of using new technologies but to improve the social development and economic productivity of individuals (UNESCO,2008). The National ICT Competency Standards (NICS, 2005,2004) describe technological competency in three components, computer literacy skills, information literacy and utilization of ICT classroom integration strategies. ACRL (2000) underscored that computer literacy focused with the rote learning of specific hardware and software applications.

Basic Computer Literacy Skills (n=99)	Public University (n=44)		Private University (n=32)		Private College (n=23)		**Overall Competency of Tertiary School Faculty**	
	Mean	Rem	Mean	Rem	Mean	Rem	Mean	Rem
Basic Computer Operations	3.48	**HC**	3.63	**HC**	3.85	**HC**	3.65	**HC**
File Management	3.27	LC	3.27	MC	3.88	VHC	3.47	MC
Word processing	3.19	**MC**	3.39	**HC**	3.28	**HC**	3.94	**HC**
Spreadsheets	3.16	**HC**	3.34	MC	3.77	**MC**	3.42	MC
Video editor tools or film production	3.17	**LC**	3.36	MC	3.72	**HC**	3.42	MC
Slide presentation	**3.65**	**HC**	**3.71**	**HC**	**3.88**	**HC**	**3.74**	**HC**
Photo editing	3.57	MC	3.36	MC	3.76	HC	3.56	MC
Electronic mailing	3.86	LSC	3.95	HC	3.85	HC	3.89	MC
Multimedia editing	**2.28**	**LC**	**2.51**	**MC**	**3.18**	**MC**	**2.66**	**MC**
Blogging	**2.50**	**LC**	**2.60**	**LC**	**3.08**	**MC**	**2.73**	**MC**
Social networking	**2.21**	**LC**	**3.08**	**MC**	**3.64**	**HC**	**3.28**	**MC**
Over all Mean	3.12	MC	3.35	**MC**	3.77	**HC**	3.28	MC

Legend:
1.00-1.80 Least Competent (LsC) 1.81-2.60 Less Competent (LC) 2.61-3.40 Moderately Competent (MC) 3.41-4.20. Highly Competent (HC) 4.21-5.00 Very Highly Competent (EC)

Table 1. Level of Basic Computer Literacy of the HEIs faculty

Table 1 showed that the **Basic Computer Literacy** skills indicated an overall mean of 3.29 rated as **"moderate"** was found to be the level of competence of faculty of higher education institutions of both the public and private universities and private colleges in General Santos City. The result further shows that faculty were **highly competent** in word processing (x=3.94) particularly on entering, editing, copying, moving and inserting charts, links, illustrations, symbols, equations, and special texts. They are also **highly competent** in a slide presentation (x=3.74) on developing slides presentation, application of slide layouts, printing using specialized page orientations and handouts. In addition, a mean of 3.65 indicates the faculty is **highly competent** in basic computer operations when setting up and connecting peripheral devices like printers, CD-ROM, external drives, modem, scanner, camera, and others. Also, a mean of 2.66 for multimedia editing, 2.73 blogging and 3.28 for social networking

rates as less to moderately competent was shown in the table. This implied that the faculty in HEIs are less likely utilized in the classroom due to less access to computer laboratories and internet connections. Davis and McGrail (2009) explained that blogging increases a person's desire to communicate and participate in discussions that may foster interactions with others. Blogs also increase the level of technological literacies.

Information Literacy Skills referred to a set of abilities the requires individual to recognize when and how information was utilized, the capacity to local and evaluate and how information was used effectively (ACRL,2000).

	Public Univ		**Private Univ**		**Private College**		**OVERALL**		
	Mean	Rem	Mean	Rem			Mean	Rem	
Using blended learning, web 2.0, google aps and computer-based technologies inside my classroom learning activities	**2.48**	**LC**	**3.00**	**MC**	**3.35**	**MC**	**2.94**	**MC**	**15**
Using basic functional editor tools for photo, audio and video to generate projects and activities to be used in the classroom	**2.95**	**MC**	**2.88**	**MC**	**3.83**	**HC**	**3.22**	**MC**	**4**
Operating various open-ended software package editors for visualization, data analysis, simulations and lesson references	**2.70**	**MC**	**2.94**	**MC**	**3.65**	**HC**	**3.10**	**MC**	**11**
Applying authoring tools to design instructional resource materials in different media format	**2.52**	**LC**	**2.81**	**MC**	**3.70**	**HC**	**3.01**	**MC**	**13**
Using appropriate software/s to manage, monitor and assess progress of various student projects.	**2.70**	**MC**	**2.78**	**MC**	**3.52**	**HC**	**3.00**	**MC**	**14**
Using network to support students collaboration within and beyond the classroom	**2.98**	**MC**	**3.09**	**MC**	**3.83**	**HC**	**3.30**	**MC**	**1**

Using virtual environments and knowledge building environment in the teaching-learning activities	**2.73**	**MC**	**3.03**	**MC**	**3.52**	**HC**	**3.09**	**MC**	**12**
Conceptualizing own learning materials and activities using online resource materials and websites	**3.05**	**MC**	**3.00**	**MC**	**3.78**	**HC**	**3.28**	**MC**	**2**
Developing knowledge and performance- based rubrics and apply them to assess students' understanding of key subject matter	**3.00**	**MC**	**3.00**	**MC**	**3.65**	**HC**	**3.22**	**MC**	**4**
Using ICT support and online instructional resource materials in increasing knowledge and understanding of subject matter	**2.93**	**MC**	**3.06**	**MC**	**3.65**	**HC**	**3.22**	**MC**	**4**
Over all Mean	2.80	MC	2.97	MC	3.65	HC	3.14	MC	

Legend:
1.00-1.80 Least Competent (LsC) 1.81-2.60 Less Competent (LC) 2.61-3.40 Moderately Competent (MC) 3.41-4.20. Highly Competent (HC) 4.21-5.00 Very Highly Competent (EC)

Table 2. Information Literacy Levels of Faculty in Higher Education Institutions in General Santos City

Data revealed that all public and private universities and colleges in General Santos City were **highly competent** in finding information needed for class papers, activities or projects on the internet as reflected by its mean of 4.10. Also, **Highly competent** in using and selecting specific search engines like google and yahoo in searching for data on information (x=4.02).

Lavery and Reed (2006) underscored that faculty must be information literate to guide their knowledge in creating activities for the future development of their students. Whitworth & Person (2003) highlighted that the internet is a tool that enhances the capability of individuals that promotes collective learning and intelligence, exploration, encourages teamwork, creativity, and constructivism. Through technology, the teacher can access multiple online resources and multimedia learning activities. On the contrary, the result also showed that faculty was rated to be moderately to highly competent in constructing and implementing effectively-effectively-designed search strategies in Boolean operators, transaction and proximity

for search engines (x=3.24); preventing unauthorised internet access (x=3.41); and participating in professional communities like sharing and discussing best teaching practices.

Harris (2001) said faculty should telecollaborative with students through the internet to allow them to be exposed with differing opinions, views, beliefs, compare, contrast, combine and provide platforms for communication with the real audience using text and imagery. ACRL (2000) purported that information literacy can multiply students self-directed learning as they become engaged in wide variety of information sources to expand their knowledge, ask informed questions and develop their critical thinking skills. Through this approach faculty will be guided in settling problem-based approaches at a deeper level by allowing the students to often use thinking skills and become self-paced learner.

ICT Classroom Integration was describe as an effective teaching strategy that promotes collaboration, transforms faculty roles, directs independent learning and promote knowledge-based building communities (Biemans,1996)

	Public Univ		**Private Univ**		**Private College**		**OVERALL**		
	Mean	Rem	Mean	Rem			Mean	Rem	
Using blended learning, web 2.0, google aps and computer-based technologies inside my classroom learning activities	**2.48**	**LC**	**3.00**	**MC**	**3.35**	**MC**	**2.94**	**MC**	**15**
Applying authoring tools to design instructional resource materials in different media format	**2.52**	**LC**	**2.81**	**MC**	**3.70**	**HC**	**3.01**	**MC**	**13**
Using appropriate s*oftware/s to manage, monitor and assess progress* of various student projects.	**2.70**	**MC**	**2.78**	**MC**	**3.52**	**HC**	**3.00**	**MC**	**14**
***Using network* to support students collaboration within and beyond the classroom**	**2.98**	**MC**	**3.09**	**MC**	**3.83**	**HC**	**3.30**	**MC**	**1**
Conceptualizing own learning materials and activities using *online resource materials and websites*	**3.05**	**MC**	**3.00**	**MC**	**3.78**	**HC**	**3.28**	**MC**	**2**
Over all Mean	2.80	MC	2.97	MC	3.65	HC	3.14	MC	

Legend: 1.00-1.80 Least Competent (LsC) 1.81-2.60 Less Competent (LC) 2.61-3.40 Moderately Competent (MC) 3.41-4.20. Highly Competent (HC) 4.21-5.00 Very Highly Competent (EC)

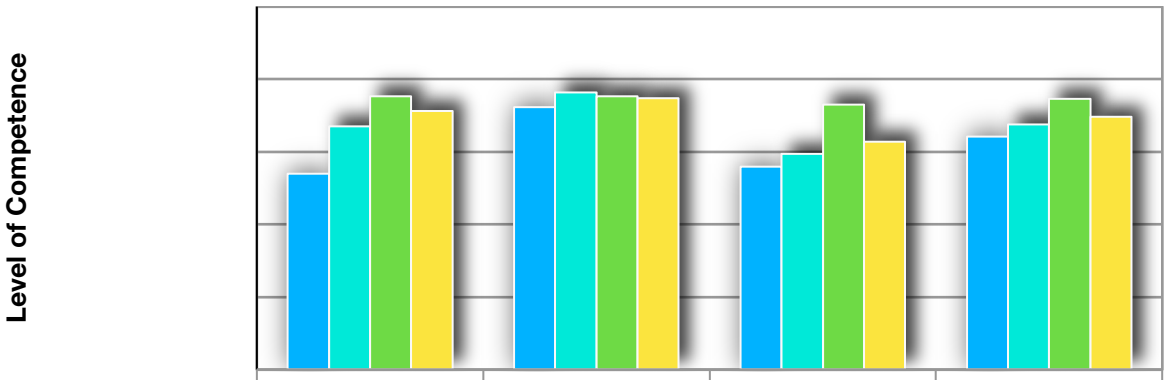
Table 3. Level of ICT Classroom Integration of Faculty in Higher Education Institutions in General Santos City

The study revealed that faculty of the private and public universities and college of General Santos City rated as **moderately competent** in using networks to support student collaboration within and beyond the classroom (3.30). Further, conceptualizing own learning materials and activities using online resource materials and websites (x=3.28). UNESCO (2003) explained that the use of ICT in the classroom is a mechanism that promotes rethinking and transforming the educational systems and processes in producing quality education to all. Guitert et.al. (2003) proven that ICT was an excellent tool to help students and faculty organize themselves and develop collaborative learning in a virtually-designed environment. This was supported by Saavedra and Opfer (2012) that the internet is a learning tool that facilities personal contour and access to content and services that are most helpful

to students and faculty. However, a mean o4 2.94 respectively means that the faculty were rated from **less to moderately** in using blended learning, Web 2.0, google maps and computer-based technologies in the classroom learning activities. Moreover over a mean of 3.01 indicates a less to **moderately competent** in applying authoring tools to design instructional resource materials in different media projects and using appropriate software to manage, monitor and assess the progress of various student projects as reflected by its mean of 3.00. Furthermore, it was revealed that private colleges have 32% very highly competent faculty and 32 % competent faculty as compared with the public university with `5% Very high competency and 26% high competency. While Private university has 6. 1% very highly competent, 21% highly competent. This implies that private universities higher percentages in integrating ICT in the classroom as compared with other universities.

Commission of European Communities (2001) said that the need to facilitate access to resources, services, remote exchange, and collaboration to improve quality learning. They emphasize that universities should now have intranet websites as basis for ICT used. They reported that in 2005 individual modules are offered online with a shift to more collaborative, problem-based and project-based learning methods.

In order to strengthen traditional practices, Cuban et.al (2001) purported that faculty should learn to innovate by taking what technology can offer.



	Basic ICT Literacy	Info Literacy	ICT Integration	Overall
Public Univ	2.7	3.62	2.8	3.21
Private Univ	3.35	3.82	2.97	3.38
Private College	3.77	3.77	3.65	3.73
Overall	3.56	3.74	3.14	3.48

Legend:
1.00-1.80 Least Competent (LsC) 1.81-2.60 Less Competent (LC) 2.61-3.40 Moderately Competent (MC) 3.41-4.20. Highly Competent (HC) 4.21-5.00 Very Highly Competent (EC)

Figure 1.Summary of ICT Competency Skills of the faculty of the Higher Education Institutions.

Figure 1 showed the summary of faculty competency skills of the faculty of the Higher Education Institutions. The findings showed a mean of 3.77 was reflected for private college rated as highly competent. While both the private university (x=3.36) and public university (x=2.70) were rated moderately competent. This implied that

private college has higher competency rate as compared to both public and private university. When the nature of computer literacy is examined, it is essential to improve the literacy levels not by age but individuals knowledge and skills level.

Figure 2 below presents the deterring factors on the effectiveness of ICT integration in the classroom. During the in-depth interview, there were three thematic terms that evolve in the study. These are ICT infrastructure, Teacher competencies and ICT integration in the classroom.

ICT Infrastructure. Informants stated that insufficient numbers and outdated computer units are one of the major problems in the integration of ICT in the classroom. The computer units used solely for courses related to ICT but not for classroom integration. Added to the problem is the slow internet connectivity or bandwidth ranging from a speed of 30mbps-50 Mbps only. Lastly, some of the computer units have expired or outdated license software.

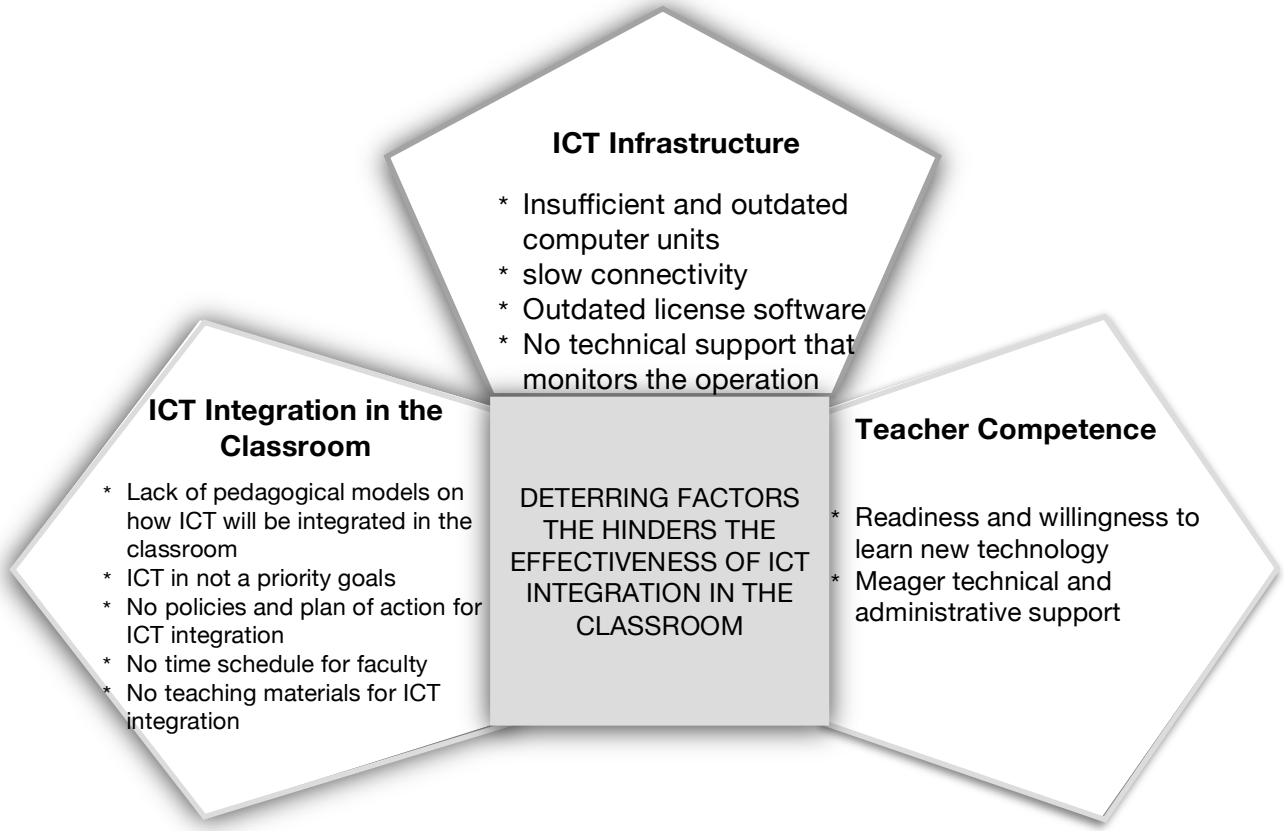


Figure 2. Thematic Analysis on the deterring factors the hinders the effectiveness of ICT Integration in the classroom in selected HEIs in General Santos City

ICT Infrastructure. Insufficient and outdated computer units are one of the major factors that hinder the effectiveness of ICT integration. Plomp et al. (2009) underscored that ICT infrastructure and resources are a necessary condition for the integration of ICT in education. Afshari et.al (2009) said that inadequate access to a computer in the classroom was not a barrier to ICT but it improved availability and fairness of access to technology resources of teachers, students, and administrative

staff. The result of the interview and observation revealed that there were insufficient and outdated computer units, slow connection and outdated license software. Jones (2004) supported the result and emphasized that breakdown of computer causes interruptions and if there is a lack of technical assistance that will do regular repairs this may further lead to a cyber phobia. NCTE in 2005 found that about 85.3% of the schools reported technical support and maintenance as high or very high.

Faculty said that support by school officials influences faculty to apply ICT in the classroom without wasting time to troubleshoot the hardware and software problems.

Teacher competencies. Computer competency is defined as being able to handle varying applications for various purposes (Van Braak et al, 2004). Evidence suggests that the majority of teachers who reported negative or neutral attitudes towards the integration of ICT into teaching and learning processes lacked knowledge and skills that would allow them to make "informed decisions" (AlOteawi, 2002, p.253, as cited in Bordbar, 2010). Information revealed those faculties are not motivated to use ICT in the classroom. Faculty do not have peer support, coaching and mentoring and problems on adaptability to technological transformation. Most of the informants mentioned that prevalent barriers that hinder the successful integration of ICT were meager technical or organizational support, teacher attitudes and expertise, and technology itself (Moeller & Reitzes (2011). Furthermore, ICT integration and information literacy training requested or organized by groups or departments who would like to undergo training were subjected to the availability of funds and approval of the head of the agency. The survey underscored that only 8% of the faculty can integrate fully technology in the classroom and 43% of pupils felt unprepared to utilized technology as they approached higher levels of learning. They argued that technology supports student-centered learning practices using flexible scheduling, pacing, project-based learning, community involvement, and assessment. It was suggested that to address this program HEIs should provide continuing ICT capability programs on basic ICT literacy, Cennamo, K, Ross and Ertmer (2010) said that to become competitive one should develop their ICT competencies and proficiency to handle educational software. Lowe(2000) underscored that the ICT program should recognize the ability to influence individual participation on varying levels and experiences.

ICT Integration in the Classroom. Most of the faculty informants said that they do not have pedagogical knowledge on how ICT will be integrated into the lesson. This is inconsonant to the statement of Peralta and Costa (2007) found that technical competence influences teachers ' used of ICT in teaching. Further, they mentioned most of the experience and new teachers express the need for technical skills, technical competence, pedagogical efficiency, and attitude. Those faculty who have more experience with the computer had greater confidence and have the ability to use them effectively. The study of Russell et.a. (2003) disclosed that new teachers who were highly skilled with technology more than older did not incorporate ICT in teaching. According to the new teachers' experiences challenges in their first few years in teaching then they tried to spend their time familiarizing themselves with the school's curriculum and classroom management. They added that they did not find any relationship between teachers teaching experience and the use of ICT implying teachers ICT skills and successful implementation of complex and vague predictor of ICT integration, Lastly, ICT integration in the classroom is not a priority goal of the

institution and there is not scheduled time given to faculty to meet, share, evaluate or develop instructional materials.

Conclusion

As a result of the study, revealed that the status of ICT infrastructure of Higher Education Institutions (HEIs) either in public and private universities and college was not that adequate and functional. Most of the school has a 1:4 ratio which means that there is an average of 4 computer laboratories per school. Each school has an average of 207 installed computer units with an average of 48 computer units per laboratory with adequate basic peripheral units like the mouse, monitor, and keyboard. There were only at most 3 laptop computers used when integrating ICT in the classroom. Common software installed is free packaged software like Microsoft accompanied by the Windows Operating system and other units operated by the Linux system has an open-source software.

Consequently, teacher's ICT competency level is a significant concept to address the technological uncertainties faced by higher education institutions both the public and private universities and college. HEIs were found to be moderately to highly competent in basic computer literacy specifically in slide presentations, basic operations, and word processing. While private college is highly competent in information literacy particularly in finding information on the internet. While in ICT integration in the classroom it was rated moderately competent in supporting students with collaboration and conceptualization or materials and activities using online resources or websites.

Most of the problems encountered by the faculty were insufficient number and outdated computers, lack of multi-media equipment, lack of pedagogical knowledge on integrating ICT in the classroom. Some of the HEIs believed that ICT is not a priority goal of the university. There is also no regular schedule for faculty to use the laboratory tor future integration, evaluation or assessment and develop instructional materials. To improve this, public and private universities should add new computers with installed license software for basic operations as well as authoring tools in order to successfully integrate ICT in the classroom. There should also be provisions of continuing ICT capacity programs that may faculty skills on blogging, social media networking, web 2.0. blended learning, flip classrooms, google learning and other technological tools. Creation of ICT committee that will spearhead the operationalization, establishment of policies, guidelines, monitoring, evaluation and sustainability plans.

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Facilitating Students Learning to Go Beyond Knowledge and Skills: A Case on Teaching Business Research by Action-Learning Project Approach

Li Yuen Wah, Baruch Consulting, Hong Kong

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Abstract
This paper presents the insights of a pilot case on teaching business research by action learning projects, or generally a project-based learning (PjBL) approach. The course was offered for full-time graduate students in Hong Kong by a local university. Students were engaged in groups of 7-8 each working on a real-company research project throughout the semester from problem definition through research proposal to final report presentation. Alongside, learning was supported by classroom activities (i.e., workshops and lectures), online discussions, and consultation meetings. Teaching effectiveness of the course was rated satisfactory (with an average score of 4.6 out of 5). Half of the class resulted accomplished-to-exemplary academic performances, on individual assignments and group projects respectively. Students reported that the project experience had helped them to acquire new knowledge and skills about research, deepen their prior learning, and identify shortfalls for further improvement. They however did not perceive the course as easier at the end of course as in the beginning, and neither hold more positive attitudes towards research and business statistics. They instead showed greater confidence in striving to do research through stages, and in looking for and making use of proper information. Besides, they came to realize the value and impact of teamwork, albeit challenges along. A few groups were also grappling with the sponsor along, for unclear demands and communication deficiency. In sum, PjBL brought about not only hand-on knowledge and skill in research to students, but also improved confidence in doing research and readiness for working in teams and with other stakeholders.

Keywords: project-based learning, action learning, teaching research methods, teamwork, sponsor, business education, MBA, mixed-method, scholarship of teaching and learning

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Introduction

This paper features the insights of a pilot run in a graduate course on research methods adopting project-based learning (PjBL), particularly action learning projects, as the instructional strategy. The course is a core course offered for full-time Master of Science in Business and Management (MScBM) students by a local university in Hong Kong. The pilot idea was motivated by my couple of reflections as follows: -

- How might students get a real feel (and touch) of what business research is about in its entirety, rather than being grappled with particular processes (e.g., transcription), tactics (e.g., questionnaire design), tools (e.g., software), or merely a certain stage of research (e.g., data analysis)?
- What matters to business students in learning research methods nowadays, besides acquisitions of knowledge and skills? I pondered this with the notion a soaring demand on our students to be a smart research consumer (e.g., well-informed managers), who are able to discern truths from half-truths or fake reports, based on their judgment on the know-how (as well as know-what) of research. This demand comes more challenging nowadays in the digital world, which is being overwhelmed with voluminous data of various kinds and varied quality – Big Data - while ever producing them, and where data technologies and tools come one after another rapidly.

Pedagogical goals of research education and project-based learning

Adopting PjBL, and particularly action learning projects, in teaching business research is promising for students to gain not only hand-on experience of the entire research process, along with the knowledge and skills required of the practice, but also attitudinal qualities favorable to the development of research competence. The extant literatures on research methods teaching and the constructivist perspective of learning are lending substantive support.

It seems so many topics for research method teachers to choose from to teach, and yet something important for research students to learn been missing. Given the huge body of knowledge and skills in research, we are indeed not lacking of subjects to be taught, especially for a semester-long course in my case. Kilburn, Nind and Wiles (2014; 2016), drawing on the insights of the literature and expert panels, proposed three key pedagogical goals, namely (1) making research process visible, (2) learning by doing research, and (3) reflection on the research process, as the guiding principles for designing curriculum for research education. Nind and colleagues also pointed out that, research education – for social and business research alike – should be positioned as being conducive to the development of multiple transferrable skills (e.g., information literacy) that enhance employability in many sectors, instead of leading linearly to a dedicated career path (e.g., professional researchers) as used to be conceived (Nind, Kilburn & Luff, 2015). To this end, nurturing of attitudinal qualities (and even dispositions) conducive to the building of research capability, e.g., self-efficacy and trustworthiness should warrant research educators' attention and consideration in course design, apart from knowledge and skills about research.

Kilburn et al.'s (2014; 2016) guidelines corroborate well with the constructivist perspective of instructional design for project-based learning (and actually problem-

based learning as well), which emphasizes anchoring all learning tasks to a problem (c.f. making research visible), involving authentic tasks in a complex environment (c.f. learning by doing), and providing opportunity and support for reflection on the content as well as the process (c.f. reflection on the research process), among others (DeFillippi & Milter, 2009). By project-based learning (PjBL), learning is facilitated to take place "through a series of activities based in authentic, real-world problems in which the learner has some degree of control over the learning environment and the design of the learning activities" (DeFillippi & Milter, 2009, p. 349). The approach was evidenced to contribute to attitudinal qualities such as self-confidence and self-directed learning readiness, as well as academic performance, in the past studies (Chen & Yang, 2019; DeFillippi & Milter, 2009). Action learning projects, as one early invention of PjBL, underline action and learning as the dual objectives of such projects (usually slightly favoring learning over action for development purpose), and their inter-entangling nature, as postured by the statement that "there is no learning without action, and no action without learning" (Revans, 1998, p. 53). Therefore, PjBL, specifically by action learning projects (they are used interchangeably henceforth), looks a particularly compelling approach for teaching research methods, whereby student groups may each take charge of a research project aiming to inform a real-world problem faced by a particular client or sponsor, and follow through the entire research cycle from inception to completion, for instance.

The pilot case in point

For the proven success in PjBL and its potential benefit in teaching research methods, I tried out the approach in one of my courses on research methods in the academic year of 2016. This is a 3-credit core course of the MScBM programme lasting for one semester (i.e., 14 weeks effectively), used to run in two parts – qualitative and quantitative - with lectures in combination with laboratory exercises (e.g., on software and fieldwork). With the aim to help students to better grasp the big picture of research, and hence a holistic view of the entire research cycle, I set out learning outcomes below, with the learning plan for the pilot course as shown in Figure 1.

Students would be able to:

- *Identify business needs for research, and plan and implement it with clients (or stakeholders)*
- *Devise relevant research proposal*
- *Apply data collection and analysis strategies – qualitative and quantitative*
- *Interpret and present research findings, and make recommendations for the decision-making and actions of stakeholders*

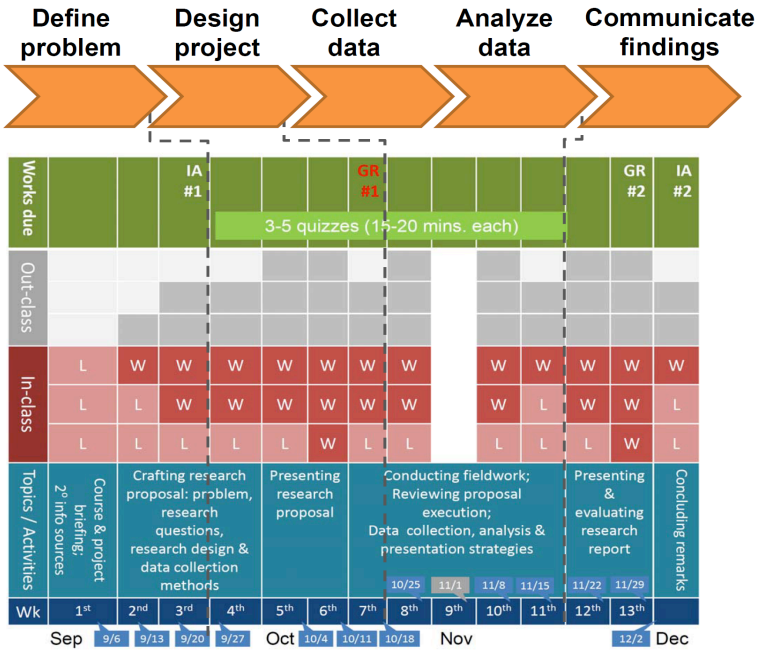

Figure 1: Learning plan at a glance for the pilot class

Instructions were given primarily in-class in the forms of workshops (denoted as "W" on the learning plan) in combination with lectures (denoted as "L"), supplemented by online materials and discussions as well as pre-appointed or ad hoc consultation meetings. Project works were taken mainly out-class, except project update (in the form of stand-up meetings) and discussion on specific project issues of common interests.

The class had 57 students in male-to-female ratio of 1 to 2, coming from 10 nationalities (mostly from the Mainland China) and varied undergraduate background (mostly business-related) with little to no working experience. They were teamed up on their own in groups of 7-8, with the requirements that each group had to have 2-3 Cantonese-speaking (a Chinese dialect) members, and be in a mix of Chinese and non-Chinese members. Eight groups were hence formed, and each assigned (with consideration of their initial selections) to work with a sponsor organization on a research project around pre-solicited problem area(s) throughout the course. The eight sponsor organizations participated in the pilot included five social enterprises and three commercial companies, all based in Hong Kong. They offered real problems calling for insights from research of quantitative (e.g., survey) and qualitative (e.g., interview and observation) orientations for the purpose of student projects.

Student academic performance was assessed by group reports (denoted as "GR#" on the learning plan, including project proposal and project report, accounting for 40%), individual assignments (denoted as "IA#", including problem orientation paper and reflective paper, accounting for 25%), individual quizzes (three during the course, accounting for 15%), and participation (in-class and online, accounting for 20%) (see Appendix A for the SIPOC diagram for all the written assignments at a glance). Individual scores on group reports were adjusted based on peer assessment results provided by other group members, according to Conway, Kember, Sivan and Wu's (1993) method.

Student achievement in terms of attitudinal qualities in particular was evaluated with mixed methods, specifically a concurrent triangulation design (Creswell, 2014). Questionnaires and reflective papers submitted by individual students offered the major sources of quantitative and qualitative inputs for analysis respectively. Questionnaires were distributed online to the class at the beginning and near the end of the course to solicit students' voluntary participation. A total of 19 matched samples (i.e., n_{paired} = 19) was accomplished, on which pretest-posttest paired comparison was conducted to evaluate attitudinal changes towards research, statistics, and information literacy, among others. Specifically, the scales of Attitudes Toward Research (ATR; Papanastasiou, 2014; 12 items; α = .645), Attitude Towards Business Statistics (ABS; adapted from Nguyen, Charity & Robson, 2016; 13 items; α = .595), Research Self-Efficacy (RSE; adapted from Forester, Kahn & Hesson-McInnis, 2004; 16 items; α = .901), and Information Literacy Self-Efficacy (IISE; Usluel, 2007; 20 items; α = .927) were used for measurement. On the other hand, document analysis of reflective papers received from the students was conducted to identify intriguing themes regarding their learning experiences and reflections. Two representing works (i.e., rated accomplished-to-exemplary) were selected purposively from each of the eight teams, amounting to a total of 16 samples (n = 16), with a view to achieve maximum variation of learning experiences of the students (Merriam, 2009).

Conclusion

The class showed a satisfactory evaluation of the teaching effectiveness in general (scored 4.61 out of 5 on average), indicating the piloted teaching approach (PjBL) being well received by the students. About half of the class exhibited accomplished-to-exemplary academic performances (i.e., scores ranged between 3.0 and 4.0) individually (on individual papers, quizzes, and participation), in group projects (with peer assessment results factored in), and in overall term, respectively (see Figure 2). This result is encouraging, if not exciting, though unable to compare with that of the course run in the past, due to different sets of assessment methods and criteria applied.

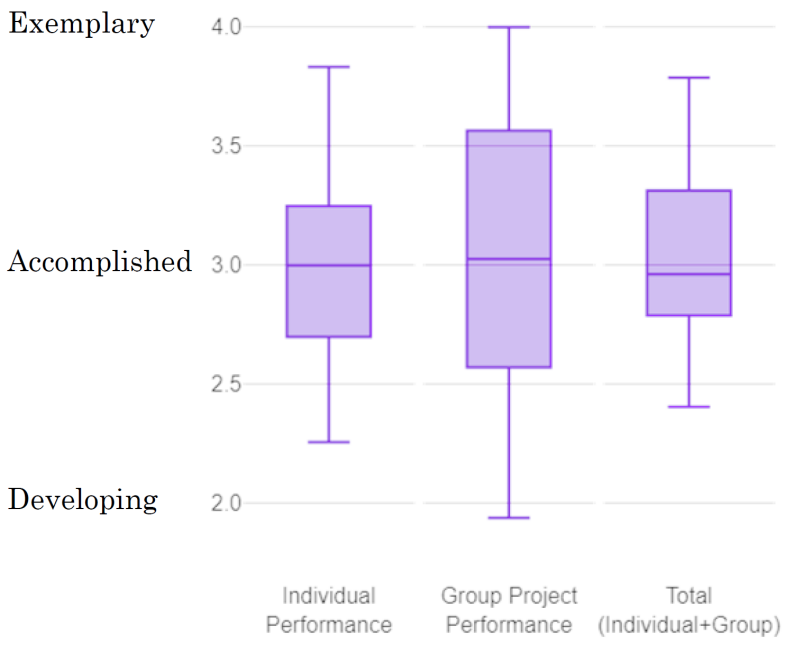

Figure 2: Academic performances of the students in the pilot course

Did the project approach make the course, or the content knowledge of research (e.g., statistics), easier for the students? It seemed not! Course difficulty as perceived (i.e., expected and felt) by the students before and after the course did not differ significantly (Paired $t(19) = -1.189$; $p = .250$) (see Figure 3). And neither did their attitudes towards statistics and research, as measured by the Attitude Towards Business Statistics (ABS) scale in terms anxiety (5 items; $\alpha = .907$; Paired $t(18) = -.412$; $p = .685$), enjoyment (5 items; $\alpha = .903$; Paired $t(18) = -.494$; $p = .665$), and perceived usefulness (2 items; $\alpha = .838$; Paired $t(18) = -1.566$; $p = .627$), and the Attitudes Toward Research (ATR) scale in terms of anxiety (5 items; $\alpha = .811$; Paired $t(19) = -1.317$; $p = .204$), positive research predispositions (4 items; $\alpha = .820$; Paired $t(19) = 1.207$; $p = .318$), and research usefulness (4 items; $\alpha = .880$; Paired $t(18) = -1.189$; $p = .250$), respectively.

Intriguingly, students showed significant improvement in their self-efficacy after the course with PjBL, as measured by the scales of Research Self-Efficacy (RSE; Paired $t(19) = 2.315$; $p = .033$) and Information Literacy Self-Efficacy (IISE; Paired $t(17) = 2.772$; $p = .014$) in particular (see Figure 3). As for research self-efficacy, students were found more confident after the course in aspects of research integration – to formulate research questions as informed by existing literature and evidences – (5 items; $\alpha = .771$; Paired $t(19) = 2.533$; $p = .021$) and data collection (3 items; $\alpha = .777$; Paired $t(19) = 2.608$; $p = .018$, as well as mildly in data analysis (5 items; $\alpha = .859$; Paired $t(19) = 1.853$; $p = .080$). Whereas for self-efficacy in information literacy, students showed significantly better confidence after the course in terms of citing information resources (4 items; $\alpha = .647$; Paired $t(17) = 3.181$; $p = .006$), using information and communication technology (ICT) to access information and developing searching strategies (6 items; $\alpha = .826$; Paired $t(17) = 2.622$; $p = .018$), and also mildly in analysis and evaluation of information (6 items; $\alpha = .845$; Paired $t(17) = 2.024$; $p = .060$). In sum, the results from the questionnaires seemed to suggest that the PjBL approach did not have made business research an easier subject to learn as perceived by the students, and neither their attitudes towards research and statistics become more positive. However, the piloted approach was found conducive to improvement of students' self-efficacies in research and information literacy. In other words, the PjBL approach is promising to bring about increased capacity for students striving to learn and do research.

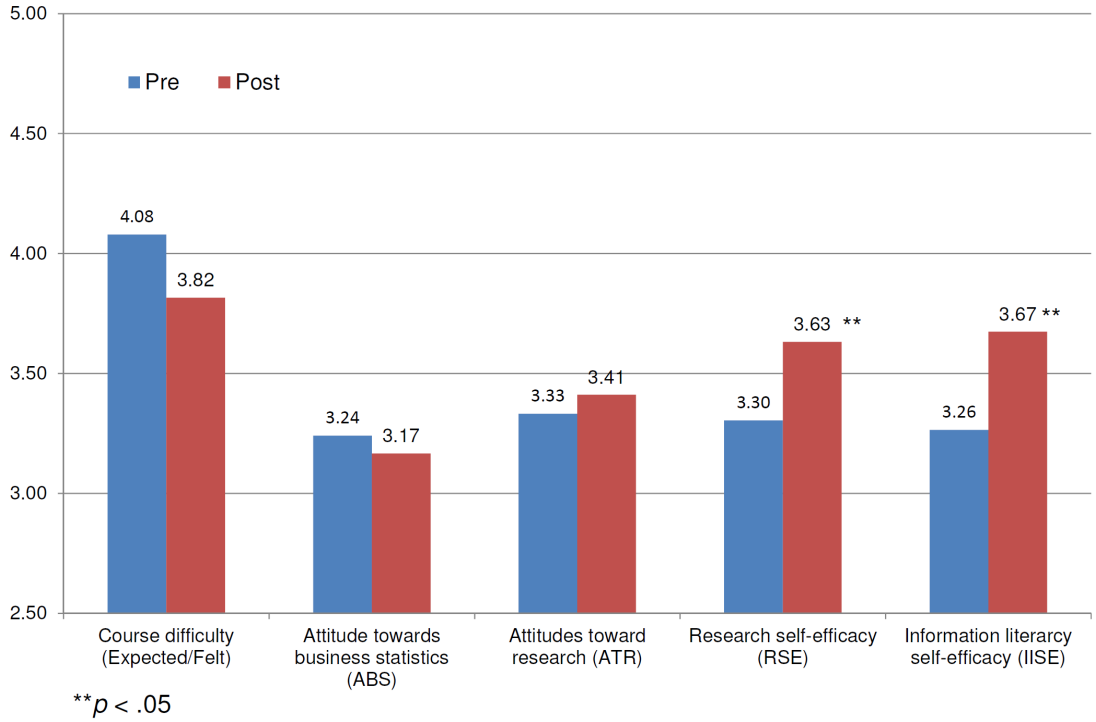

Figure 3: Paired comparison of students' perception and attitudes before and after the course

What were the students' experiences of the course as reported in their reflective papers (submitted at the course end)? The document analysis (n = 16) revealed students' experiences classified in three categories, namely their learning about research, teamwork experiences, and dealing with the sponsor respectively (see Table 1).

First, students found the course, and the project work in particular, being helpful for them to acquire new knowledge (e.g., on particular research processes) and skills (e.g., certain tools) in research. Some others got improved understanding of certain concepts (e.g., sampling) or confidence in certain skills (e.g., presentation), or both, when given to practice in the project work. This notion was particularly pronounced for those students who had had prior knowledge or experience in research, characterizing embodied familiarization (Yanchar, Spackman & Faulconer, 2013). Most intriguingly, some students identified their own deficiency in knowledge and skills (e.g., defining research problem and interviewing) upon reflection of their own practice. The practice seems to have offered an important basis for reflection and insights to emerge that motivate students to make improvement by themselves as a reflective practitioner (Schön, 1987).

Second, most of the students came to realize the importance and contribution of teamwork through the project, along with tips come up for working together effectively as a team (e.g., common goal, and commitments to each other). Despite the rewarding experience (e.g., working with diverse members), they also noticed the challenges along (e.g., in reaching consensus) as well as the need to strive for improvement. Team development, albeit an atypical outcome for conventional teaching approaches, is a signature contribution of action learning projects and PjBL (Marquardt, 2004; Schwering, 2015).

Third, a few project teams expressed concern, and even complaint, about the dealing with sponsors. They felt it challenging to cope with unclear or ever changing demands of the sponsor on the project, be it due to the working style of individual managers-in-charge (e.g., due to lack of commitment to student projects), or the changing business environment faced by the sponsor organization (e.g., that called for rapid adaptation). Perhaps worse still, they found effective communication hardly established or maintained with the concerned personnel of the sponsor organizations for the project to proceed adequately. Managing sponsor has been acknowledged as one common challenge of the project approach (Schwering, 2015). In fact, the challenge is not only faced by students, but also the instructor, where in my case, despite communication with the sponsors to solicit for support and commitment been made before and during the project. Apart from my ongoing assistance offered to the student groups in need, students had also been reminded that such challenges might come as normal rather than exceptional to business projects in the real world, and so advised to take it as a pre-boarding 'test'. Such kind of learning through "authentic, real-world problems in which the learner has some (only some!) degree of control" (DeFillippi & Milter, 2009, p. 349) is what PjBL is all about, and valued by business executives and hiring managers who preferred most strongly graduates having real experiences working with a company or organization (Hart Research Associates, 2018).

Table 1: Students' learning experiences in the course as revealed in the reflective papers

Experiences	Insights	Illustrative Quotes / Examples
Learning about research	New concepts or skills acquired	● *"Working on XYZ case… have (has) gained brand-new knowledge of each (research) procedure."* (ID#8*)* ● *"Knowing how to use excel as an analytical tool is not only interesting but also very helpful.."* (ID #1)
	Prior understanding reinforced and renewed	● *"These lectures and activities helped us to strengthen the concepts while helping us revised (refresh the understanding of) the knowledge that I had learnt."* (ID#16) ● *"Practiced self-learning skills, …became more skilled in presenting ideas, and lastly more confident."* (ID#3)
	Gaps revealed	● *"If our team worked on this project again, we should define the business problem and set the business (research) questions more correctly and efficiently."* (ID#8) ● *"Interviews did not go very well, and we should have learnt or practiced a little more before doing it for an actual case."* (ID#4)
Team-working	Importance recognized	● *"I came to realize the significance of teamwork and commitments from each individual (member)."* (ID#2)

		● *"I also learned teamwork. I am glad that our team work in unity and help each other…. A successful team should have a common goal and special goal(s)."* (ID#6a)
	As challenging as rewarding	● *"There was a general feeling of disagreement between us in the way we communicated and presented the materials to our manager."* (ID#1) ● *"…gained valuable experience of working with people from different backgrounds…"* (ID#3)
Grappling with the sponsor	Demands kept changing	● *"The manager gave us few suggestions and then approved that plan. However, things didn't develop as we expected while beginning to do the research. The manager refused us to do the questionnaire and the interview in the shop, but they agreed to help us to collect the data (in the first place)."* (ID#7) ● *One company changed its business model while the project was going on based on the prior requirement*
	Lack of effective communication	● *"…there seemed to be kind of a misunderstanding (of our intention) between our group…and the owner of ABC, which clearly impeded our research report."* (ID#11) ● *Groups found hard to meet up with the manager in charge in general*

Taken the results altogether, the PjBL approach piloted in the course on business research did not make research methods an easier subject for students to learn, and neither convert them to hold more positive attitudes toward research and business statistics. The project experience however facilitated student to learn new knowledge and skills of research, take their prior understanding or skills to the next level through practice, and recognize rooms for improvement by themselves in reflection. It was also evidenced to have brought about increased self-efficacy in research and information literacy to the students, promoting their capacity for striving through stages of research and looking for and making use of proper information in particular. By working in teams throughout the project, students came to realize the value and power of teamwork. Tactics emerged and got refined as challenges came along. They were also grappling with the sponsor along in varied degree. Unclear or changing demands by the sponsor, probably coupled with communication deficiency, in particular was found to have impeded the project progress. Managing teamwork and sponsor relationship however had provided students with authentic, real-world challenges for learning to take place that goes beyond academic domains, characterizing the contribution of the PjBL approach.

Acknowledgements

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Contact email: consult.baruch@gmail.com

Appendix A

BUS7040 (AY2016-17) Deliverables at a Glance

Supplier	Input	Process	Output	Customer	Owner
Instructor Library, www, and etc.	Briefing note Information relevant to the case organization and related problems	Information search, selection, and review, and writing problem context	Problem context (by Sep 19)	Team members; Instructor	Individual
Team members Client Library, www, and etc.	Problem context Problems facing, research needs, requirements & constraints Information relevant to the case organization and related problems	Identifying client's problems and reseach needs, and formulating research proposal	15-min presentation of preliminary ideas for the research proposal (starting Sep 27)	Class; Instructor	Team
Class, instructor Client	Feedback and comments on the preliminary ideas presented Further comments and approval; Internal data	Finalizng the research proposal with the client	Final research proposal (by Oct 10)	Client; Instructor	Team
Respondents / informants Client Library, www, and etc.	Responses, data Internal data Information relevant to the case organization and related problems	Data compilation and analysis	Presentation of interim / top-line findings#	Client	Team
Client	Feedback and comments on the interim / top-line findings; Internal data	Report writing	Final presentation (15-min.) of the summary findings, conclusions, and recommendations (Nov 29 & Dec 2) Final report (Dec 5)	Class; Instructor Instructor	Team
Team Class, instructor	Research proposal & final report Feedback and comments on the final presentation, if any	Reflection and paper writing	Reflective paper (Dec 12)	Instructor	Individual
Class, instructor	Feedback and comments on the final presentation, if any	Preparing presentation	Project presentation#	Client	Team

#Highly recommended, though not part of the course requirement

Table A1: SIPOC diagram for the written assignments of the course

Scholarship of Teaching and Learning Engagement and Awareness in VPET in Hong Kong

Rechell Yee Shun Lam, Vocational Training Council, Hong Kong
Fiona Wing Yin Luk, Vocational Training Council, Hong Kong

The IAFOR Conference for Higher Education Research – Hong Kong 2019
Official Conference Proceedings

Abstract
Scholarship of Teaching and Learning (SoTL) is widely promoted and used in USA, Canada, UK and Australia since 1990s. SoTL encourages teachers to plan and evaluate the relationship between learning and teaching when practicing their teaching pedagogy. Through the process, research capability of teachers will be enhanced. As in the Report of the Task Force on Promotion of Vocational Education in 2015, it has recommended that enhancing the research capability of Vocational and Professional Education and Training (VPET) institutions is one of the strategies to strengthen the promotion of VPET. To assist the growth of research capability, SoTL can be one of the approaches to be considered. This study aims to explore the engagement and awareness of using SoTL in VPET in Hong Kong. A questionnaire was designed based on the structure of CASTL survey from the Carnegie Foundation. Teaching staff in Vocational Training Council, who attended the research and teaching skills training workshops during March to June 2019, were invited to fill in the questionnaire. 69 completed questionnaires were collected and analysed. The findings provided the initial review on VPET teachers' awareness and engagement in SoTL in Hong Kong. It could be used as reference for the policy establishment that supports the VPET research capability development in the future.

Keywords: Vocational and Professional Education and Training, Scholarship of Teaching and Learning, educational research

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Introduction

In Hong Kong, Vocational Education and Training (VET) has more than 80 years of history. The major focus of VET was in providing education and training opportunity to young people before employment (VPET Repository, 2017). Until 2015, the Task Force on Promotion of Vocational Education of Education Bureau of Hong Kong SAR Government had reviewed the VET in Hong Kong and published a report. The report pointed out that the development of VET in Hong Kong had to be enhanced in order to prepare the youth to face the challenge in the future. To facilitate the development of the VET, action for reversing the misconception on VET in Hong Kong society must be taken. The Task Force recommended three strategies which were i) rebranding VET as Vocational and Professional Education and Training (VPET), ii) strengthening the promotion of VPET, and iii) providing the public more information of VPET and the related career (Task Force on Promotion of Vocational Education, 2015).

Riding on the second strategy: Strengthening the Promotion of VPET and its recommendation on enhancing the quality of programmes offered by VPET providers and research capability, VPET providers are encouraged to consider engaging in more research activities, including action research, applied research, technology-oriented research, and other academic research to inform teaching and learning (Task Force on Promotion of Vocational Education, 2015).

Research capability of the VPET institutions can be enhanced through innovating new product or service with research and development activities or progressing the learning and teaching (L&T) practices with scholastic perspective. Scholarship of Teaching and Learning (SoTL) could be one of the perspectives for consideration.

SoTL is a concept that encourages educators to systematically investigate or examine the relationship and practices between L&T. It has been widely discussed and embedded in L&T of the western academia since 1990s (Maxwell & Ball, 2010; Geertsema, 2015). However, SoTL has not yet widely discussed in VPET institutions in Hong Kong.

Hence, the research team had conducted a survey to explore the engagement and awareness of SoTL in Vocational Training Council, which is the largest VPET institution in Hong Kong. We hope that the findings of the survey could provide information on the SoTL development in Hong Kong so as to facilitate the discussion of policy establishment for research capability enhancement.

Usage of SoTL in Western Society and Hong Kong

In 1990, Ernest L. Boyer firstly suggested the concept of Scholarship of Teaching. Boyer though that teacher had the responsibility to develop their teaching planning carefully. Examination on the pedagogical procedures used in teaching had to be conducted as well. With the evidence collected from student learning process, teachers could analysis the relationship between learning and teaching (Maxwell & Ball, 2010; Geertsema, 2015; Voelker 2016).

SoTL then became a trend in L&T in post-secondary level in the past decades. Definition of SoTL is variate from scholars. Different scholars demonstrate different practice on SoTL. Investigation on the classroom practice, inquiring the L&T process in post-secondary institution, public sharing and review on L&T study, and research-informed teaching are the activities of SoTL. The major aim of conducting SoTL is to enhance the educational quality, so the SoTL practice should also be appropriate to the disciplinary epistemologies and college mission. It was recognised that SoTL had brought impacts on L&T by promoting the realisation of values, encouraging student engagement in investigation and reflection on particular topics, facilitating peer review, knowledge sharing and cross-disciplinary collaboration (Society for Teaching and Learning in Higher Education, n.d.; Fanghanel et al., 2016; Chng & Looker, 2013; Maxwell & Ball, 2010; Geertsema, 2015).

SoTL has been widely used in the western countries, include USA, Canada, UK and Australia. Teachers in USA thought that SoTL was important to their professional development in post-secondary sector and the learning of students. USA institutions had engage in the use of SoTL in different levels and subjects. A survey tool called "CASTL" was being used by institutions to self-evaluate the SoTL development within the institution (Fanghanel et al., 2016; Maxwell & Ball, 2010; McKinney et al, 2003; Mincer & Hessinger, 2012; Witman and Richlin, 2007). A national framework and funding on SoTL were operated in Canada. Official organisation "Society for Teaching and Learning in Higher Education" and its journal "Canadian Journal for the Scholarhip of Teaching and Learning" were established to promote and assist the development of SoTL in Canada (Hughes, 2017; Poole, 2010). In UK, the main focus of SoTL work were the research output and student participation in research process. Collaboration and knowledge sharing through social media were highly valued (Fanghanel et al., 2016). Standard of SoTL was well developed in Australia. The Australian University Teaching Criteria and Standards project set the standard of SoTL and facilitated more than 60% of Australian universities to use the standards in their institutions (Fanghanel et. al., 2016; Australian University Teaching and Criteria and Standards, n.d.).

In Hong Kong, SoTL is a new concept to the city. Zou (2018) discussed that Hong Kong educators might have already practiced SoTL in other terminology. The competitive culture of Asian examination system obstructed the development of SoTL that encourage the knowledge sharing and exchange. The "face" concept in Chinese society discouraged students to participate in open discussion and to raise disagreement in the public. Hong Kong students tended to be gentle, polite, not confronting with others and avoid to take risk of conflict. This made the development of SoTL in Hong Kong slow (Chng & Looker, 2013; McNaught, 2012).

As mentioned, SoTL could be one of the aspects to consider for the enhancement of research capability of VPET in Hong Kong. The discussion of SoTL in Hong Kong is still in a preliminary stage. Therefore, the research team distributed questionnaires to teaching staff of VTC to find out the engagement and awareness on SoTL in the largest VPET institution in Hong Kong.

Methods

CASTL survey is the tool that established for institution to paint a broad-brush picture of the SoTL in the institution (Carnegie Foundation, 2004). Universities or academic departments can conduct the investigation by using the survey tool or formulating a questionnaire with some questions in the survey that consider proper for their own situations (McKinney et al., 2003; Maxwell and Ball, 2010; Mincer and Hessinger, 2012). In reference to the SoTL investigation practices of University of Florida in 2010, Armstrong Atlantic State University in 2012 and Illinois State University in 2003 (McKinney et al., 2003; Maxwell and Ball, 2010; Mincer and Hessinger, 2012), the research team decided to formulate a questionnaire based on the CASTL survey tool.

The questionnaire consists of three parts. The first part aims to find out the respondents' engagement on SoTL. The second part is to figure out the respondents' awareness and attitude towards SoTL. Basic demographic information will be collected in part three in anonymous. As SoTL is a concept coming from the western countries and not a popular term in Hong Kong (Zou, 2018; McNaught, 2012), new questions are added and wordings in the questions are being modified to familiar terms of Hong Kong educators.

Convenience sampling was used for data collection. Teaching staff who attended five sessions of the research and teaching-related training organised by the Centre of Learning and Teaching of Vocational Training Council from March to June 2019 were invited to fill in the questionnaire.

Findings

69 completed questionnaires were collected from five sessions of research and teaching-related training provided to teaching staff of Vocational Training Council. The average years of teaching in VPET institutions was 7.83 years, while the average years of research experience was 2.07 years. This reviewed that the participants were experienced teachers with few research experience. 97% of the respondents were frontline teaching staff, who were in the positions of Teaching Associate, Lecturer, Assistant Professor, Instructor and Teaching Fellow. 95.4% of the respondents obtained Bachelor Degree or above qualification, which meant that the respondents would probably receive some trainings on research before their graduation.

Engagement in SoTL

In the first part of the questionnaire, participants were asked to declare whether they had participate in any SoTL related activities in the past 12 months.

The engagement of respondents in SoTL was quite low in their research participation, training attendance and research output. There were only one third of respondents had conducted SoLT research and participated in co-research project in their own institution (A1, A2). Less than a quarter of respondents had the experience in joining cross-institutional research (A3). There were less than 12% of respondents had received research funding (A9). Only 15.9% of respondents were currently working on SoLT research project (A10). Participation in SoLT training and academic

conference were only 26.5% and 31.9% (A4, A5). There were only 17.4% of respondents presented in conference or uploaded their research onto the internet (A6, A8). 20.3% of participants had research publications (A7). Details of the responses are listed in Table 1 as below.

Table 1. Teaching Staff's Engagement in SoTL in Past 12 Months

Statement	Yes	No
A1. I have defined and conducted research on questions about teaching and learning within my teaching.	22 (31.9%)	46 (68.1%)
A2. I have worked with colleagues at my institution in defining and conducting research on questions about teaching and learning.	25 (36.2%)	44 (63.8%)
A3. I have worked with researcher beyond my institution in defining and conducting research on shared concern of teaching and learning.	15 (22.1%)	53 (77.9%)
A4. I have participated in institutional research training that related to teaching and learning.	18 (26.5%)	50 (73.5%)
A5. I have attended a session about teaching and learning research at an academic conference.	22 (31.9%)	47 (68.1%)
A6. I have presented my teaching and learning research at an academic conference.	12 (17.4%)	57 (82.6%)
A7. My teaching and learning research has been published or accepted for publication in a journal or a book.	14 (20.3%)	55 (79.7%)
A8. I have made my teaching and learning research available on a website.	12 (17.4%)	57 (82.6%)
A9. I have received funding for a project on teaching and learning research.	8 (11.6%)	61 (88.4%)
A10. I am currently working on a project in teaching and learning research.	11 (15.9%)	58 (84.1%)

Awareness and Attitude on SoTL

Respondents were invited to rate the statements with 5-point scale. 1 meant strongly disagree, and 5 meant strongly agree. Respondents tended to agree with the value of SoTL, however, they tended to disagree to take action related to SoTL. Respondents tended to agree that SoTL had practical value to teacher, students and VPET institutions with mean value higher than 3.27 (B2, B3, B4). Respondents agreed that knowing SoTL was good for teaching with mean value in 3.27 (B6). The potential value of SoTL in improving the education quality was recognised with mean value higher than 3.24 (B9, B11, B13, B14, B15). Research collaboration is also recognised with mean value 3.22 (B10).

Though SoTL is valued by the respondents, the respondents did not agree in taking action related to SoTL. Respondents did not agree to use SoTL in their teaching and conduct SoTL research with mean value in 2.89 and 2.96 (B5, B7). Respondents had low intention in conducting SoTL research individually and in collaboration with mean value 2.65 or above (B16, B17). This may because of respondents were unfamiliar with SoTL with mean value 2.24 (B1) and not enough resources for SoTL research with mean value 2.52 (B8). Details of the result in the awareness and attitude on SoTL is listed in Table 2.

Table 2: Respondents' Rating on the Awareness and Attitude of SoTL

Statement	Mean
B1. I am familiarised with SoTL.	2.24
B2. SoTL has practical value for teachers.	3.30
B3. SoTL has practical value for students.	3.27
B4. SoTL has practical value for VPET institutions.	3.38
B5. Results from SoTL research are used/applied in my teaching.	2.89
B6. Knowing the SoTL is important for good teaching.	3.27
B7. Teacher should do some SoTL research.	2.96
B8. There are enough resources for SoTL research.	2.52
B9. The curriculum should be updated with the recent research results/findings.	3.24
B10. Cross-disciplinary collaboration in L&T research is important for good teaching.	3.22
B11. Systematic inquiry on L&T process is important to educational quality.	3.44
B12. I want to practice research-informed teaching in my teaching.	3.09
B13. Engaging students in research process improve students' learning.	3.33
B14. Sharing the L&T research findings with peers and the public is important for enhancing the educational quality.	3.35
B15. Discipline chooses the appropriate methods to conduct L&T research helps enhancing educational quality.	3.32
B16. I want to conduct SoTL research in the coming twelve months.	2.65
B17. I want to develop SoTL research collaboration in the coming twelve months.	2.60

Conclusion

To enhance the research capability of the VPET institution, SoTL could be considered as one of the perspectives to assist the enhancement. The result shows that the engagement in SoTL is low in research participation, research training attendance and research output production. Though the VPET teaching staff were not familarised with SoTL and did not want to take action on SoTL in the coming 12 months, they still recognised the value of SoTL.

As SoTL is a concept that being used and invented by western society, the understanding of SoTL may not be familiarised by Hong Kong VPET teaching staff. Hence, it is suggested that more training on SoTL and resources for research have to be provided in order to assist VPET teaching staff to enhance the research capability. Further study on the teaching staff's needs in conducting SoTL research should be conducted.

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Contact email: rechelllam@vtc.edu.hk
fionaluk@vtc.edu.hk

Universities and their Engagements with Augmented Reality (AR) and Virtual Reality (VR) Initiatives: An Environmental Scan

Manasvini Narayana, eConcordia/KnowledgeOne Inc., Canada
Wynnpaul Varela, eConcordia/KnowledgeOne Inc., Canada
Jihan Rabah, eConcordia/KnowledgeOne Inc., Canada

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Abstract
The ongoing rise of digitally immersive technologies is hard to ignore. According to a recent study by the Global Virtual Reality Association, by 2020 the augmented and virtual reality (AR-VR) sector will create an estimated 225,000 to 480,000 jobs in Europe alone. Come 2025, the global economic impact of immersive technologies is expected to reach USD 80 billion. And in the probable race for dominance, AR's fusion of virtual reality and real life is likely to triumph over VR's alternate digital reality model, with the former on track to generate revenues of 90 billion USD by 2022, in contrast to VR's projected 15 billion. Unsurprisingly, the rapid evolution of AR-VR in higher education raises important questions about how best to establish intelligent AR, VR, and simulations programs that truly enhance learning outcomes. To better understand the current adoption of immersive technologies, this environmental scan provides an overview of how institutions of higher education are presently engaging with digitally immersive technologies—both academically and administratively. This scan also emphasizes industry and university collaborations where they occur. For the purposes of this report, however, the environmental scan takes the primary perspective of the universities and does not include a scan of industry players or their perspective of AR-VR in higher education.

Keywords: University, Augmented Reality, Virtual Reality, Immersive Technologies

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Introduction

Online students can now experience, practice, and learn by being immersed in virtual reality (VR) and augmented reality (AR) as well as other immersive, high-fidelity simulation technologies. The continuum of AR-VR hardware and software is also sometimes referred to as Extended Reality (XR), a flexible superset that accommodates all of (or combinations of) these terms.

A variety of collaborative and experiential learning options are made possible by recent advances in these technologies. Immersive XR experiences can help students visualize difficult concepts by offering a multi-dimensional perspective. They could also help learners explore physical environments that are difficult to access (such as the inside of an engine) or dangerous to manipulate (such as a nuclear reactor), thus enhancing a student's ability to practice skills or learn about such environments. The potential combination of XR with artificial intelligence (AI), machine learning, and big data could also allow for more powerful or feature-rich XR learning environments. While these developments in immersive technologies have garnered tremendous interest in the entertainment industry, they are attracting attention within universities as well, for a variety of reasons. This paper is an overview of the ways in which institutions of higher education are engaging with XR—both academically and administratively. It takes the primary perspective of the universities. It does not, therefore, include a scan of industry players in XR nor their perspective of XR in higher education.

Method

This study is an environmental scan. By definition, an environmental scan observes broad stroke patterns, prioritizing breadth over depth of information. In order to conduct such a scan, an iterative approach was adopted. First, an open search on Google was undertaken using keywords such as virtual reality, augmented reality and mixed reality in conjunction with the term higher education. This established the most popular and visible projects, news and happenings at the intersection of XR and higher education. Then, the study focused on identifying how top ranked universities were engaging with XR. Using the Times Higher Education Ranking, a list of the top 10 universities for 2018 was drawn up for North America, Europe, Asia and Australia. Given the concentration of top-ranking universities in some countries such as the UK and China, a further categorization was made among the continents: China and 'Rest of Asia' as well as UK and 'Rest of Europe'. Next, a detailed search was conducted for the top 3 universities in each list. The researchers faced a roadblock with Chinese universities since information was only available in Mandarin, and the websites themselves did not seem to structure information in the way that universities in other parts of the world typically do. Consequently, it was decided to exclude China from this study, with the intention of reviewing it separately at a future time. The search was based on publicly available information on university and other websites. Maximum efforts were made to triangulate information from multiple sources to ensure a degree of validity. The review of projects also focused on ways in which Universities were engaging with XR, in terms of how they used and worked with XR. The researchers also tabulated XR related research projects that were described in university websites. However, a search through academic databases to assess the nature and quantum of published XR research in each university was not undertaken

at this time. Once the XR projects from the selected universities were identified, they were analyzed. Seven themes in XR use emerged.

Emerged Themes

Basic Research in XR. We define this theme as "under the hood" research, and it refers to research into fundamental issues, technologies and processes that drive XR. Such fundamental research is essential for the growth of the technology as well as the industry. Our scan revealed that basic research in immersive technologies is being conducted within the fields of engineering, computer science, biomedical, neuroscience, or cognitive science. Some of this basic research is conducted in conjunction with industry or other players, and an example of that would be Caltech-NASA's collaboration with Virtualitics, a platform that combines AI, Big Data, Machine Learning, AR, and VR. Other research is more interdisciplinary: ETH Zurich's Department of Neuroinformatics conducts research on neural correlates of virtual reality interactions. Similarly, The University of British Columbia's Emerging Media lab is also involved in research on pain, brain plasticity and suggestibility using VR in the form of the PainBox[1]. The focal goal of this project is to check if it can be demonstrated that pain can be induced by suggestion, because it might be possible to reverse-engineer this finding so as to help people experiencing chronic pain. Yet other projects look at very specific questions about the working of virtual environments such as in the work of McGill's Shared Reality Lab, which studies how to establish haptic feedback in virtual reality environments.

HCI and visualization in XR. The second emergent theme related to design questions related to human-computer interfaces (HCI) and XR. For example, Stanford's Virtual Human Interaction Lab[2], researches human interaction with technological systems, in this case immersive experiences such as VR simulations. University de Montreal has a dedicated center for excellence for "human interaction in a digital world", which is focused on XR. The cognitive science department of ETH, Zurich explores the use of VR in designing buildings, where researchers experiment with the usability of building features (such as signage) in VR, and the users' responses and feedback. Visualization is the other aspect of this theme where immersive technologies were used to present information and data through visual-spatial means to enhance their usability. Examples of such projects are Caltech's Bruce Murray Lab[3] for Planetary Visualization which provides state of the art image processing, visualization and data integration projects. The Center for Data Driven Discovery[4], also at Caltech, works with "immersive and collaborative scientific data visualization" in collaboration with the Jet Propulsion Lab at Caltech.

XR for medical and rehabilitative purposes. A third category of XR projects in universities revolved around the use of XR for medical or health issues of all kinds: physical, cognitive, neurological, behavioral and psychological. This category of projects seemed prolific, with a wide range of projects in universities across the world.

1 http://eml.ubc.ca/pain-box/

2 https://vhil.stanford.edu/mission/

3 http://murray-lab.caltech.edu/

4 http://cd3.caltech.edu/

Stanford's Neurosurgical and Virtual Reality Center[5] offers surgeons patient-specific procedure simulation in VR, ahead of the surgery to help them prepare for the actual surgery. The Stanford Center for Continuing Medical Education also hosted a conference[6] on the use of VR for mental health in 2017. The Faculty of Medicine is piloting the use of VR for patient education[7] to prep them for procedures, making them less stressed in the process. University of Toronto Scarborough is piloting a VR based test[8] of cognitive impairment. The University of British Columbia's Emerging media lab is working on a VR approach to help patients with chronic pain[9] in their own homes, built in collaboration with researchers from Simon Fraser university. McGill University Health Center uses AR technology for surgery assistance[10]. The University de Montreal has research projects in which VR is used for therapies for sexual offenders. The Department of Psychiatry at Oxford uses VR to treat psychiatric issues[11] such as fear of heights, psychosis and social anxiety. The results have been successful enough for the researchers to spin out a commercial company called Oxford VR[12] with the same rehabilitative goals. At The University of Melbourne, the University's Engineering department collaborates with industry player Motek Force Link to combine motion analysis with VR[13] tech to study how physical stimuli affect the body and support rehabilitation. The University of Queensland's Center for Clinical Research, is exploring ways in which VR experiences can combat[14] behavioral and psychological symptoms of dementia and Parkinson's disease. The University of Hong Kong houses a virtual reality lab of urban environments and Human health[15]. This uses virtual reality to explore the relationships between urban built environments, and people's physiological and psychological health. The University of Tokyo's Department of Pain and Palliative medicine has successfully used VR to alleviate phantom limb pain[16]. The medical and child psychology departments in the Seoul National University collaborated with a commercial game developer to create a VR game to help young children prepare for surgical procedures[17], and thereby reduce the stress they undergo.

Teaching and learning through and about XR. The fourth category of XR projects in universities is related to the use of XR for teaching and learning purposes in the university. This included learning about XR as well as learning another subject through XR. A sampling of courses about XR are as follows; Stanford's EE267[18], an undergraduate course on creating components of VR, both hardware and software. At

5 https://med.stanford.edu/neurosurgery/divisions/vr-lab.html

6 https://med.stanford.edu/cme/courses/2017/psychiatry17.html

7https://www.utoronto.ca/news/not-just-gamers-u-t-anesthesiologists-taking-virtual-reality-patients-facing-surgery

8 https://www.utoronto.ca/news/virtual-reality-test-real-world-impairments

9 http://eml.ubc.ca/projects/vr-in-pain-control/

10 https://muhc.ca/newsroom/news/muhc-takes-augmented-reality-operating-room

11https://www.psych.ox.ac.uk/research/oxford-cognitive-approaches-to-psychosis-o-cap/projects-1/oxford-virtual-reality-vr-for-mental-health

12 http://oxfordvr.org/

13 https://pursuit.unimelb.edu.au/articles/using-virtual-reality-to-treat-real-world-injuries

14 https://shorthand.uq.edu.au/medicine/virtual-reality-frees-the-mind/

15https://www.arch.hku.hk/researchcentre/virtual-reality-lab-of-urban-environments-human-health/

16 https://www.u-tokyo.ac.jp/focus/en/articles/a_00513.html

17 http://en.snu.ac.kr/media-coverage?bm=v&bbsidx=125098

18 https://stanford.edu/class/ee267/

the National University of Singapore, the school of Computer Science offered a course on interaction design[19] for VR and AR in 2018. The University of Hongkong offers a course on the human aspect of virtual worlds[20] in this humanities program. Caltech's Art 88 course in Critical Making[21] explores the nature of many technologies including VR. On the other hand, are a range of projects that use XR for teaching students and communities a particular subject or topic. Examples of this include: Stanford University's science education VR content for the public about ocean acidification[22] and Harvard Graduate School of Education's pilot VR program to help middle schoolers explore ecology related issues[23]. NASA, Brown University and Harvard have collaborated to combine several astronomy and imaging technologies to create a VR experience of walking within stellar debris[24]. The Harvard Law School published a series on legal issues[25] relating to virtual reality in 2017, which we also classified as being related to teaching and learning. At the University of British Columbia, the HoloBrain[26] AR app was created as a teaching tool that could be implemented in neuroanatomy instruction, and to evaluate its effectiveness in the classroom. The University of British Columbia has also developed Physics World[27] to help students visualize physics concepts and. Math World[28] with a similar objective. UBC Faculty of Medicine and Faculty of dentistry collaborate on a VR experience to learn about the structure of the skull in Fossa Finder[29]. Exploration of an ancient city in Cyprus[30], being developed both in AR and VR. Soil TopARgraphy[31] is an AR app that showcases soil orders. Students view the AR terrain in a satellite or height-map view, watch videos, or take quizzes to learn about soils in a visual and interactive approach. Journey with me[32] is an AR journey from Syria to Vancouver while listening to real stories of people who have had to immigrate under difficult circumstances. This project aims to help people understand and empathize with the emotional journeys of refugees. UBC also conducted a summer institute in 2018 called Viewpoints on a New Medium[33], referring to VR. The National University of Singapore Center for Instructional Technology showcases Technology Enabled Learning Initiatives. This demonstrates the ways in which individual professors or departments use AR and VR as part of their instructional practices[34].

Procedural practice through XR. The fifth category of XR projects includes those that use these technologies to learn and practice high risk procedures in the low risk

[19]https://ivle.nus.edu.sg/V1/lms/public/view_moduleoutline.aspx?CourseID=06c4d3a7-d2ff-4a67-a7c5-6e9ec32d910b

[20] https://commoncore.hku.hk/cchu9056/

[21] http://www.hss.caltech.edu/courses/undergrad/department/Art/2017-18

[22]https://news.stanford.edu/2016/10/18/virtual-reality-simulation-transports-users-ocean-future/

[23] https://www.gse.harvard.edu/news/uk/14/11/virtual-reality-real-science

[24] http://chandra.harvard.edu/vr/

[25] https://jolt.law.harvard.edu/assets/articlePDFs/v30/30HarvJLTech601.pdf

[26] https://news.ubc.ca/2017/08/28/mixed-reality-gives-neuroanatomy-lessons-a-boost/

[27] http://eml.ubc.ca/projects/physics-world/

[28] http://eml.ubc.ca/math-world/

[29] http://eml.ubc.ca/projects/fossa-finder/

[30] http://eml.ubc.ca/projects/exploration-of-ancient-city/

[31] http://eml.ubc.ca/projects/soil-topargraphy/

[32] http://eml.ubc.ca/journey-with-me/

[33] http://pdce.educ.ubc.ca/virtual-reality/

[34] http://www.cit.nus.edu.sg/tech-day/

environment of VR, such as for surgery. Some of these projects may also be reasonably categorized as medical, but given the variety of procedural practice projects, we decided to create a separate category. For example, at the ETH, Zurich's Department of Computer Science, a project combines virtual reality and AI to create a driving simulator that supports adaptive tutoring for driving[35]. HongKong University Faculty of Engineering has created 'imseCAVE', a high performance, low cost, virtual environment for industrial applications and training[36]. This platform has also been used by the Hong Kong corrective service department[37]. At McGill, the Open Orchestra projects is described as a "flight simulator for orchestra musicians", which allows musicians to practice as if with a live orchestra. At the University of Tokyo an inter-faculty initiative in Information studies is working on the concept of "Augmented Humans[38]", where sensory inputs from robots, drones or other people is accessed by a person. This has implications for sports training, disaster management and the like.

Narratives and experiences in XR. The sixth category of projects that we encountered can best be described as the use of VR to create experiences or to immerse the viewer in a story or narrative. These projects explore environments and the human condition through performance and the arts. For example, Stanford's Communications Department is considering future of journalism with VR[39] and has developed a course related to it. At MIT, the Computer Science and Artificial Intelligence Lab created a VR program to build empathy[40], underlying the importance of being at the intersection of technology and social issues. A related project is the interesting 'Machine to be another'[41] performance. University of British Columbia's Stanley Park VR tour[42], is a geography field trip created using a combination of immersive technologies. The university's Emerging Media Lab has also created a series of 360-degree videos[43] of iconic sites on UBC's campus as well as in Vancouver. This serves as an orientation to new students, apart from being available to the public.

XR as a hook. The seventh category of projects in the sample were ones where XR was used in practical ways to engage with students or the larger community. This aim of engagement was to "hook" people in order for them to engage in other, traditional ways with the university. Typically hook projects were used to attract students during recruitment events, or for knowledge mobilization. In an era where national and international student mobility is high, it is often not feasible for potential students to actually visit campuses they are interested in. Universities are therefore experimenting with XR applications to attract potential students, or provide campus tours for those who are unable to physically attend. In 2015, the Savannah College of Art and Design

[35]http://www.gtc.inf.ethz.ch/publications/adaptive-tutoring-on-a-virtual-reality-driving-simulator.html

[36] https://www.hku.hk/press/press-releases/detail/12995.html

[37]https://www.imse.hku.hk/events/virtual-reality-scenario-training-applied-in-staff-institute-of-the-correctional-services-department

[38] https://www.u-tokyo.ac.jp/en/whyutokyo/science_16_2.html

[39] https://news.stanford.edu/thedish/2016/08/29/virtual-realitys-future-in-journalism/

[40] http://news.mit.edu/2017/student-profile-danielle-olson-0531

[41]https://docubase.mit.edu/lab/case-studies/the-limits-of-virtual-reality-debugging-the-empathy-machine/

[42] http://eml.ubc.ca/projects/geography-vr/

[43] http://eml.ubc.ca/projects/360-videos/

sent Google Cardboard headsets to 30,000 accepted students to let them visually explore the school's campuses. SCAD featured a 26 percent jump in admissions within 12 months of starting the program[44]. In 2017, SCAD debuted an enhanced version of its course catalog[45], which offered prospective students a detailed view of the school via AR videos of students' creative sessions, games they'd designed and other items[46]. A wide variety of universities use some form of XR for campus tours including University of Miami, Georgia College, Bates College, Florida Polytechnic, University College London, Bloomfield college, University of Shanghai for Science and technology, Trinity University, Hartford University, Regis University, Princeton, Kent State. On a related note, Iowa State University uses VR specifically to attract future athlete students. Attracting sportspersons is a high priority for universities such as Iowa State, but game day visits are complex and expensive to arrange. VR seems to provide some options[47]. Most of these tours are not developed internally by the university but are either outsourced or developed in collaboration with commercial entities such as YouVisit and Lucid VR. Ecity Interactive, one such provider, claims that "Virtual reality tour companies now have more than 1000 colleges and universities on the roster, and these numbers will only grow over time." XR technology is also used in some instances to share the research work being done in the university. Iowa state has used VR in a public outreach program to educate the community on the experience and impact of an upcoming bridge over the Missouri river.

The XR Sandbox. Many universities appear to have a general collection of XR hardware and software, that is available for the university community to experiment with, or just to try out as an experience. Universities typically have extensive XR equipment within specific departments if those departments are already involved in XR projects of some kind, usually in science, engineering, computer science, the arts and media departments. However, the use of this equipment often needs to be multi-disciplinary. On this account, it is often university libraries that make XR equipment available for use just as they would make other library resources available. Typically, libraries and centers for teaching and learning also provide the learning support to help the community actually use the equipment. While a large number of universities reviewed appeared to have some sort of XR Sandbox, some of the bigger sandboxes are to be found at the National University of Singapore, Oxford University, and Caltech. In fact, the Caltech library also houses VR software developed in-house by the Caltech community[48].

Conclusion and Recommendations

AR-VR is currently penetrating the higher education sector. The general themes we characterizes the AR-VR initiatives in higher education are as follows: Basic research, research in HCI and data and information visualization for AR-VR, use of AR-VR in medical and rehabilitation contexts, AR-VR for teaching and learning, VR for

[44]https://www.scad.edu/about/news-press-and-recognition/2015-02-23-scad-extends-campus-experience-through-virtual-reality

[45]https://www.prnewswire.com/news-releases/savannah-college-of-art-and-design-introduces-groundbreaking-augmented-reality-college-experience-300418478.html

[46]https://edtechmagazine.com/higher/article/2018/05/4-ways-colleges-are-embracing-virtual-reality

[47] https://www.news.iastate.edu/news/2015/10/16/gameday

[48] https://www.library.caltech.edu/VR

professional practice, VR for narratives and arts-based experiences, VR as a hook, and AR-VR sandbox. Most AR-VR initiatives encountered in the HE sector can further be characterized along two dimensions. The first dimension describes its application in either teaching or research; the second is whether AR-VR is the topic or the medium of the activity. This creates four quadrants of activity: (1) AR-VR as the object of research; (2) AR-VR as the technology through which research & research creation takes place; (3) AR-VR as the subject of study; and (4) AR-VR as a learning technology.

It is an exciting time to fundamentally rethink, reconceptualize the affordances of the technologies, how they may be relevant to research and teaching activities along with the rethinking of the technologies themselves. Finally, our scan was entirely based on publicly available data. As such, we did not contact people and speak to them directly to validate these findings and analyses. Direct communication with universities and their industry partners would potentially grant us access to richer data, which would in turn permit yet deeper levels of analysis.

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Contact email: jihan.rabah@knowledgeone.ca

A Survey of the Problems, Wants, and Abilities of Writing Skill of Secretaries

Pasiree Kanhasuwan, Silpakorn University, Thailand
Rin Cheep-Aranai, Silpakorn University, Thailand

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Official Conference Proceedings

Abstract
English language becomes an obvious key tool for success in international businesses. Secretaries play a crucial role to manage company administrative duties. Although they are exposed to the target language daily, writing problems in various types of documents still occur. Besides, the needs of English for their profession have scarcely been revealed. Specifically, only a few sources focus on English writing development for secretary. This study aims at investigating problems, wants, and abilities of the English writing skills of secretaries using quantitative and qualitative methods. Questionnaires were distributed to thirty secretaries and ten managers to explore problems and wants in the field. Furthermore, in order to get in-depth information, the authentic written work-related documents were submitted by the secretaries to examine their English writing abilities in terms of grammar, content, word choices, and mechanics and style. The results showed that the problems were mainly found and perceived in word choices, content, and grammar. In addition, the secretaries indicated that they wanted to improve their writing skills in content and word choices which interestingly corresponded to the managers' wants for their secretary to improve. Lastly, the abilities of writing skills in style and grammar were higher than in word choices and content. In the end, the important implications of secretary's writing skills included aspects of professional development for secretaries and course and content redesign for educators in order to serve the real needs for the better practice in the business as a whole.

Keywords: Writing Skill, Secretary, Problems, Wants, and Abilities

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Introduction

English plays an important role and often commands the status of a second language in countries where it is not the mother tongue (Ahmad, 2016). Working knowledge of the English language provides people with the advantages of better education and employment opportunities (Sutnongbua, 2002). English language proficiency is also essential all sectors of Thai infrastructure including the economy, politics, society, culture, and education. Nowadays, businesses face intense domestic competition and this encourages expansion to international markets. Thus, there is greater need for employees that are capable and conversant with English language skills. Most companies require people with secretarial skills to performs various administrative duties and other important tasks that assists and supports the executive team (Steger & Erismann-Peyer, 2009). These secretaries should have good characteristics, personality, and technical knowledge, and also possess a general educational grounding in psychology, social science, economy, law, accountancy, and English language (Hiranphicha, 2019). Secretaries are expected to have an excellent grasp of the four basic English language skills of -listening, speaking, reading, and writing to facilitate their duties in today's cut-throat business environment. However, writing has been determined as the most lacking skillset, with frequent errors in documents. This is not surprising because writing is generally regarded as the most difficult English skill to master (Phuket & Othman, 2015).

This study sheds light on the extent of the problems, wants, and abilities in business sectors regarding expertise in all English language skillsets for secretarial purposes, especially writing. Secretarial competence and mastery of the English language will promote and support greater productivity in all aspects of business management.

Methodology

This survey research study investigated 1) problems in English writing skills among secretaries; 2) the wants of secretaries concerning English writing skills, and 3) the abilities of secretaries in English writing skills.

The study participants consisted of two groups. The first included 30 secretaries, selected by simple random sampling technique from four private companies engaged in auditing, security services, taxation, and business administration consulting as PricewaterhouseCoopers ABAS Ltd. (PwC), EY Corporate Services Limited (EY), Deloitte Touche Tohmatsu Jaiyos Co., Ltd. (Deloitte) and KPMG Phoomchai Holdings Co., Ltd. (KPMG), respectively. The second group comprised 10 managers with secretaries under their supervision from the four aforementioned private companies. Participants in the second group were also selected using simple random sampling.

Data Collection and Analysis

Two questionnaires for secretaries and managers were first designed and then validated by experts in the fields of English language teaching and assessment. The relevant questionnaire was distributed to 30 secretaries as the main instrument to collect problems and demands concerning English writing skills for secretaries. The questionnaire adopted a five-point Likert scale and consisted of three parts as

demographic information of the respondents, problems that they encountered daily in English writing skills, and the wants to improve their written English. English writing abilities of the secretaries were determined by examination of their authentic written work-related documents. Additionally, in order to investigate the wants of English writing skills for secretaries, the manager sample group was required to answer a questionnaire divided into two parts as demographic information of the respondents and the wants to improve the English writing skills for their secretaries.

Data were analyzed by comparing results of the main secretarial duties according to the Thailand Standard Classification of Occupations: TSCO B.E. 2544, together with three practice books of English for Secretaries by focusing on writing skills, based on Communication for Business and Secretarial Students, Secretarial Office Procedures, and Webster's New World Secretarial Handbook. Exercises from the books were adapted, examined by experts, and included in the questionnaire as another research tool. This study focused on four types of secretarial duties as minutes taking, reports, letter/email correspondence, and memos. Five aspects of English writing skills were highlighted, consisting of grammar, content, word choices, mechanics and style as illustrated in Table 1.

Table 1: Types of Secretary Work and English Writing Skills

<table>
<tr><th colspan="3">Thailand Standard Classification of Occupations (Thailand)</th><th rowspan="2">Present Study</th></tr>
<tr><th>Occupation</th><th>No.</th><th>Work/Duties</th></tr>
<tr><td rowspan="4">Secretary</td><td>1</td><td>Report</td><td rowspan="4">English Writing Skills:
1. Grammar
2. Content
3. Word Choices
4. Mechanics
5. Style</td></tr>
<tr><td>2</td><td>Minutes</td></tr>
<tr><td>3</td><td>Letter/Email Correspondence</td></tr>
<tr><td>4</td><td>Memo</td></tr>
</table>

Data concerning problems and wants in English writing skills were gathered from both secretaries and managers and analyzed using SPSS for Windows. Data concerning abilities in English writing and authentic work-related documents written by the secretaries were submitted for examination by three experts based on the criteria listed in Table 2.

Table 2: Criteria for Examining the Secretaries' Authentic Written Work

Topics	3	2	1	0
Grammar	Excellent grammar, spelling and syntax**.**	A few errors in grammar, spelling and syntax**.**	Shows a pattern of errors in grammar, spelling, and syntax. Could also be a sign of lack of proofreading.	Continuous errors.
Content	Exceptionally well presented and argued; ideas are detailed, well developed, supported with specific evidence & facts, as well as examples and specific details.	Well-presented and argued; ideas are detailed, developed and supported with evidence and details, mostly specific.	Content is sound and solid; ideas are present but not particularly developed or supported; some evidence, but usually of a generalized nature.	Content is completely unsupported and missing all key detail.
Word Choices	There is clear use of a personal and unique style of writing, suited to audience and purpose; the paper holds the reader's interest with ease.	There is an attempt at a personal style but style of writing may be awkward or unsuited to audience and purpose; the reader may lose interest in some sections of the paper.	There is little attempt at style; reads as flat and perhaps uninteresting in content, which is usually generalized and clichéd.	No attempt at style.
Mechanics	Excellent punctuation.	A few errors in punctuation, but not many	Shows a pattern of errors in punctuation. Could also be a sign of lack of proofreading.	Continuous errors.
Style Organization: Overall	Well-planned and well-thought out. Includes title, introduction, statement of	Good overall organization includes the main organizational tools.	There is a sense of organization, although some of the organizational	No sense of organization.

	key information, transitions and conclusion.		tools are used weakly or missing.	

Results and Discussions

Demographic information of the respondents indicated that all the secretaries were female; approximately 33% were between 31 and 35 years old, while 70% graduated with a bachelor degree, mainly majoring in the Faculty of Arts. Most had 1 to 5 years' job experience. Conversely, around 80% of the managers were male, aged over 40 and had graduated at master degree level.

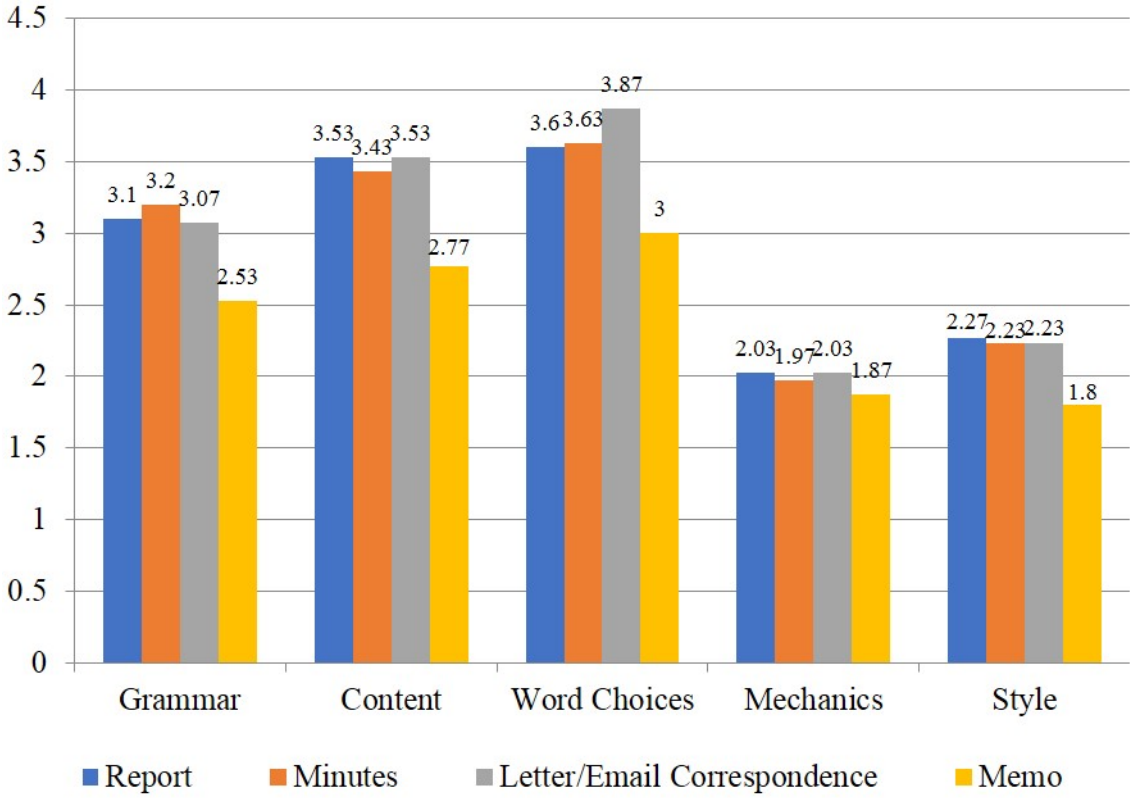

Figure 1: The Problems in English Writing for Secretaries

As shown in Figure 1, word choice yielded the highest level of problems in English writing for secretaries. The influence of their mother tongue as Thai resulted in the failure to choose words that were appropriate for the given contexts. Moreover, selecting word choices from lists of synonyms was one of the main causes of errors because some synonyms represent different meanings when applied in diverse contexts. Words in a list of synonyms are by no means interchangeable. This error resulted in the use inappropriate English words in some contexts (Phuket & Othman, 2015). Furthermore, the writing aspect that the secretaries encountered the least was style, probably because they were infrequently required to change writing formats. Thus, lack of knowledge and cognizance in this area was problematic.

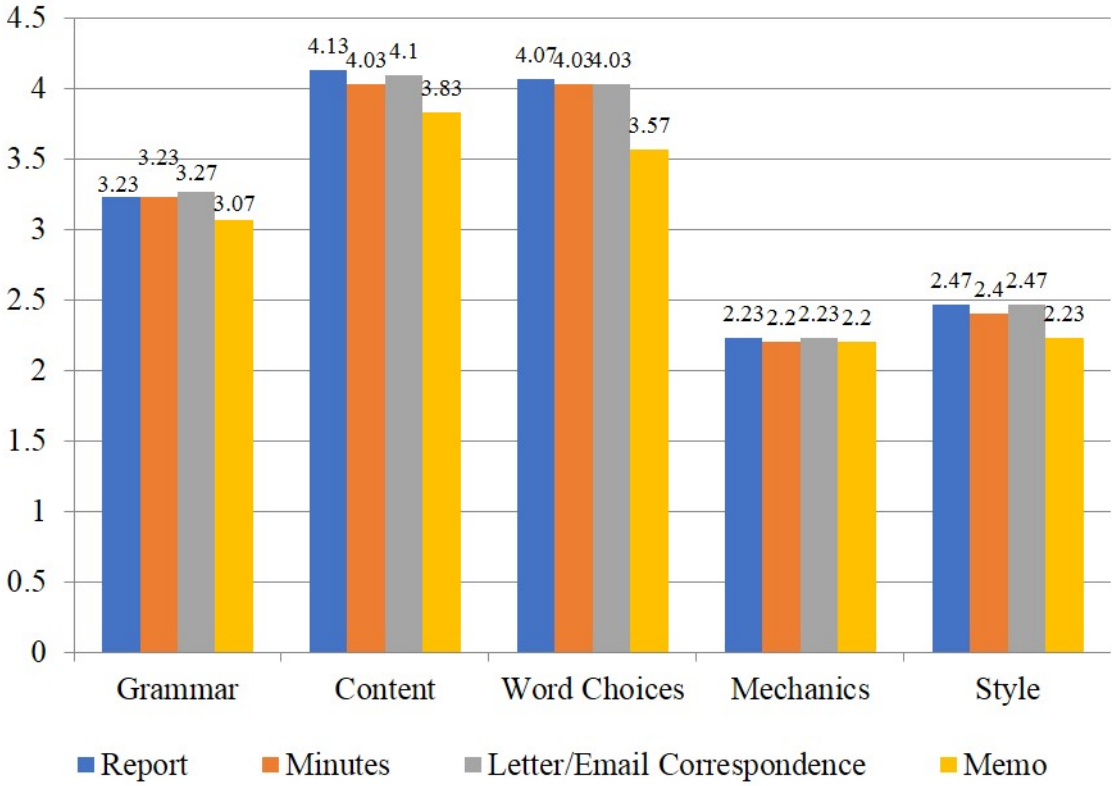

Figure 2: The Secretaries' Wants to Improve in English Writing for Secretaries

Figure 2, shows that the wants to improve English writing skills for secretaries in terms of content were at a relatively high level. Most secretaries yearn to improve their English writing skills in terms of content. Written explanation, as non-verbal language, lacks extra facets of understanding that can be communicated through gestures as body language and tone of voice. Thus, to convey complete information, via the written word, the content must be clear, unambiguous, and pertinent for the readers to correctly understand the purposes or details unambiguously. Results indicated that the secretaries wanted to improve mechanics the least. Using the available advanced technology, written reports, minutes, letter/email correspondence, and memos can now be corrected automatically in terms of spelling, capitalization, and punctuation. This possibly reflected the reason why mechanics was a skill in which the secretaries desired the least improvement.

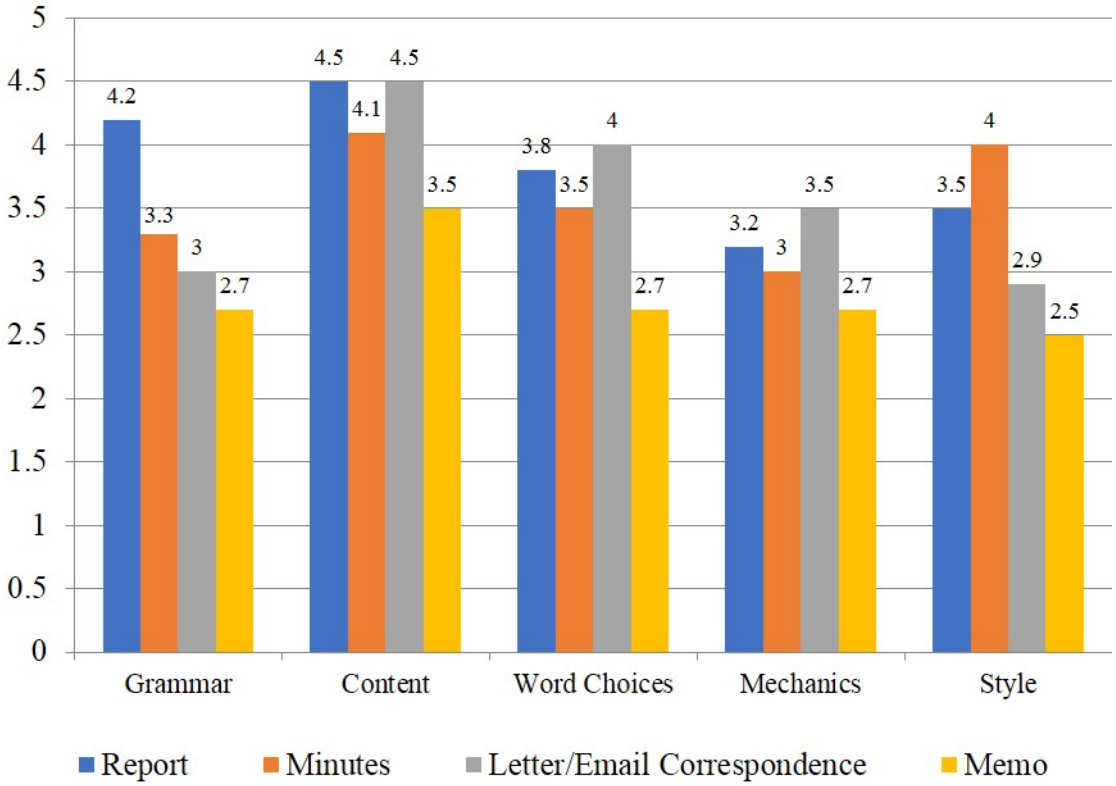

Figure 3: The Managers' Wants to Improve in English Writing for Secretaries

Results from the managers' questionnaire are shown in Figure 3. Most managers expressed similar wants toward their secretaries. Content was an aspect of English writing skills that they desired their secretaries to improve the most, probably because managers prefer to convey complete and comprehensive meaning with no minor grammatical mistakes. This finding concurred with Suraishkumar (2004) who noted that organizations required writers to be aware of both readers' and listeners' perceptions. Therefore, abilities to convey content and present relevant information were crucial since written communication must present clear intention. The least wants among managers was also mechanics in every secretarial duty including reports, minutes, letter/email correspondence, and memos. Furthermore, managers desired secretaries to improve their knowledge concerning language structure and discontinue the written use of Thai discourse particles such as ka, kha, and krub. Following Thai culture, these filial discourse particles are commonly used to show respect as good manners. Secretaries are familiar with the use of these words and feel more comfortable when they use these discourse particles in their written texts. However, English language structure does not have similar ending discourse particles and suitable word choices are selected to convey politeness.

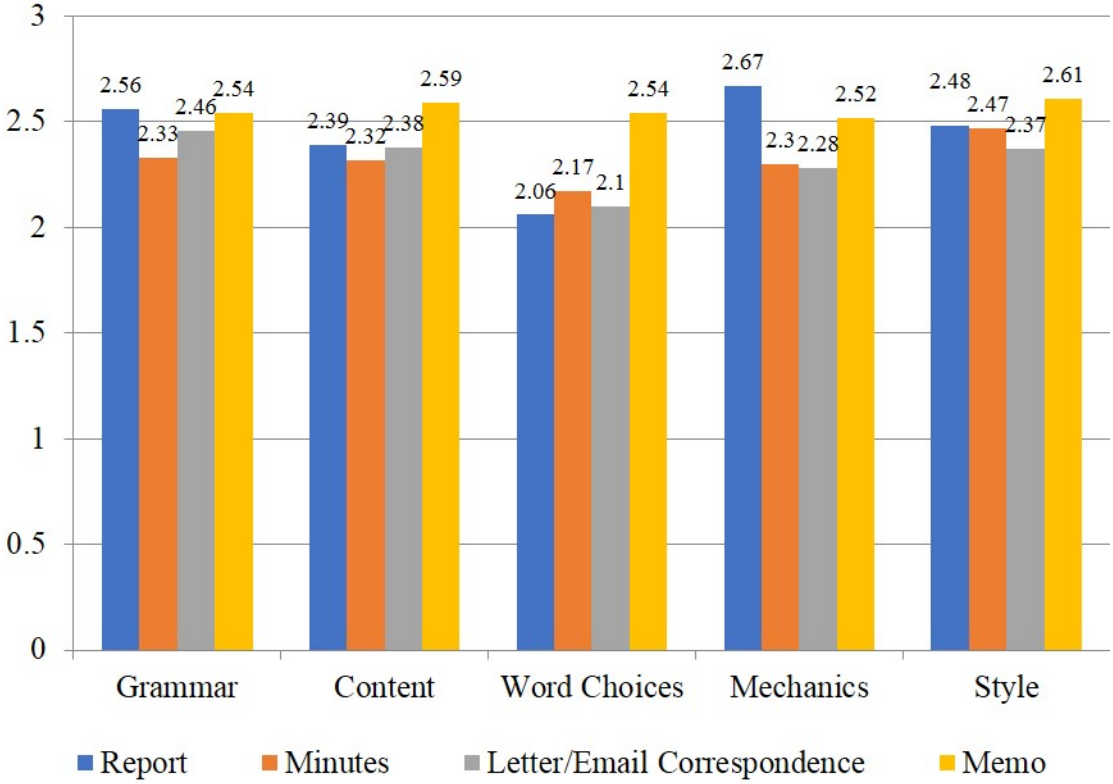

Figure 4: The Abilities of Secretaries in English Writing for Secretaries

Findings indicated that the abilities of secretaries were relatively high as shown in Figure 4. Style yielded the highest level, possibly because companies normally provided formats and styles or even examples of different types of writing. Word choice yielded the lowest level, since one English word can have several different meanings depending upon the context in which it is used. Thus, the secretaries encountered difficulties in choosing appropriate words for use in different sentences and diverse styles of writing. Word choice is a key aspect that can easily lead to misunderstanding. According to Scott and Nagy (2004), considered word choice as a crucial aspect of writing. Careful choice of appropriate words involves taking the meanings, the readers, and the hierarchy into consideration. Mistakes arising from incorrect and inappropriate word choice lead to misunderstanding and misinterpretation.

Conclusions

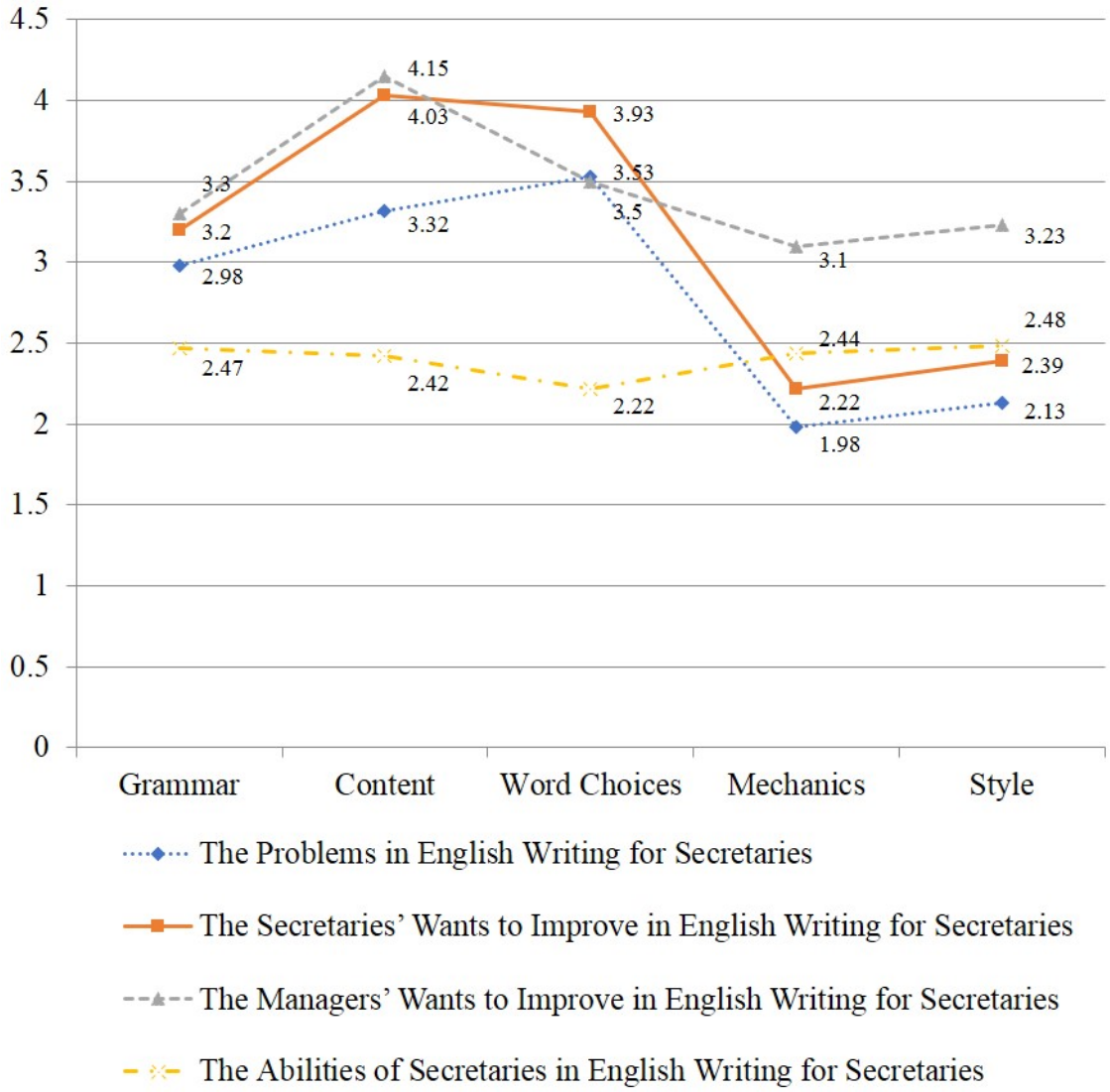

Figure 5: The Problems, Wants, and Abilities in English Writing for Secretaries

Results implied that word choice was the most problematic aspect of English writing for secretaries and marked as low score on their written abilities. The wants to improve English writing skills for secretaries further showed that message content required improvement at a relatively high level, while they desired to improve mechanics the least. For secretaries, style and mechanics were at a higher level than the problems and the wants in English writing, whereas abilities in other English writing skill aspects were lower than problems and the wants in English writing. Nevertheless, managers' wants in style and mechanics were higher than secretaries' problems, wants, and abilities in English writing.

Acknowledgements

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Contact email: Star_fruity@hotmail.com

An Experiment of Innovation Education in a Japanese University

Keiichiro Yoshinaga, Kanazawa University, Japan

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Abstract
A knowledge-based society is urging universities to change education. There are three factors to consider for this change: construction of knowledge, the power of groups, and design-based learning. Although East Asian students usually study hard to earn good scores in paper tests, their learning is often solitary and passive. This is a serious issue in a knowledge-based society where innovation requires inner motivation, engagement, and cooperation among peers. Seven professors decided to work together for four experimental innovation courses at Kanazawa University in 2019 to develop an innovative mind. This paper will discuss the first two of the four courses, how students changed, and their implications for the future of higher education. In the first course, the students learned communication skills through discussion and presentation, made a simple business proposal, and learned how to revise their ideas through the interaction with other students. In the second course, the students made an effort to put their ideas into reality by making prototypes with cardboard and Styrofoam. In this type of education, learning is different in three ways. First, students find their topics based on their curiosity and social needs. Second, they try to find solutions in groups with a series of exchanges with others. Third, they obtain knowledge and skills by themselves after fully understanding their necessities. Although this is a simple experiment, it is a beginning to transform learning at the university.

Keywords: Higher Education, Innovation, Design Thinking

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Introduction

Shown in the results of PISA and TIMSS, Japanese secondary education is famous for its achievements in STEM education (Table 1). This is a good aspect of Japanese secondary education. Nevertheless, according to the attitude survey of PISA, Japanese pupils like to study neither science nor mathematics in spite of their performance(Table 2). The same contradiction can be found among other East Asian countries. This is a puzzling issue for educational scholars outside East Asia.

Among educational scholars in East Asia, such a contradiction is considered to be understandable. There is a strong pressure to enter prestigious universities to lead a successful life in East Asia. Since universities require entrance examinations, education is often focused on the training for test-taking, which explains the great performance in international tests. It is a great system of coercion for study but often neglects the other purposes of education such as engagement, individual development, curiosity, communication skills, and collaboration (Freeman, Marginson, and Tyler 2015: 33-80).

	PISA(Math)	PISA(Science)	TIMSS(Math)	TIMSS(Science)
	15-Year-Old (2012)		8th Grade (2015)	
1	Shanghai	Shanghai	Singapore	Singapore
2	Singapore	Hong Kong	South Korea	Japan
3	Hong Kong	Singapore	Taiwan	Taiwan
4	Taiwan	Japan	Hong Kong	South Korea
5	South Korea	Finland	Japan	Slovenia

Table 1: International Tests

	TIMSS Do Not Like Learning Mathematics	TIMSS Do Not Like Learning Science
	8th Grade (2015)	
1	Croatia	South Korea
2	Taiwan	Taiwan
3	Belgium	Japan
4	Finland	Israel
5	South Korea	Australia

Table 2: Attitude Questionnaire

At this age of knowledge-based society, examination-focused education is detrimental. Paper tests usually accompany the memorization of knowledge, routine operations, coercion, orders from teachers, individual performance, and perfect answers. Those qualities correspond to the characteristics of the industrial age where hard work and precision of operations are valued, and do not meet the demands of the knowledge-based society which emphasizes knowledge construction, praise, inner motivation, engagement, group collaboration, and design (Thomas and Brown 2011).

Accordingly, the demands of industries to workers are changing. Companies are now asking for not only hard work and strict disciplines but also innovation skills such as motivation, engagement, collaboration, life-long learning, boundary-crossing, and

challenge. Furthermore, the organizational structure of corporations is also changing. The structure of companies used to be hierarchical and to divide workers into different units where communication between units is difficult. Currently, companies are introducing an agile development where different specialists work together in a small group and cover a wide range of tasks from product design through marketing. Since the boundary between different tasks is diminishing, the scope of workers is expanding, and they need to know design, customer needs, and costs regardless of their specializations.

Therefore, universities are urged to change their education to cope with the knowledge-based society. Japanese universities have a great tradition of senior thesis which gives undergraduate students research experience. There is, however, a great room for improvement for the lower division of undergraduate education which is dominantly one-way lecture. Currently, Project Based Learning, Student Project, and Internship are added to undergraduate curriculum, but most course works are intact.

Those are the backgrounds of this experiment. To transform the learning of students who are accustomed to memorization and individual study, the experiment emphasizes soft skills including engagement, inner motivation, and attitude. The experiment is a part of electives among general education courses. It intends to provide the basis for university education and life-long learning rather than specialization and innovation itself.

Body

In 2019, six professors and one professor from Kanazawa University of Art agreed to offer four courses for innovation education in Kanazawa University, Japan (Table 3). Kanazawa University is a regional national university which houses ten thousand students and one thousand faculty members. It is usually placed at the twentieth in university rankings, and the qualities of the students are well above the national average.

Quarter	Title	Instructors
1	Learning Design	Two Faculty Developers & Health Scientist
2	Creative Mind & Methods	Product Designer
3	Medical Innovation	Mechanical Engineer & Medical Doctor
4	Prototyping & Design Thinking	Electrical Engineer

Table 3 Course List

“Learning Design” focused on the development of soft skills. It started with self-introduction, the lecture on the necessity of the transformation from teaching to learning in education, and the multiple intelligent test to know themselves. The course was offered for six students in an active learning studio. The students worked in a group of three for discussion, presentation, concept mapping, feedback, and reflection. Although students hesitated to express themselves in the beginning, soon they became active in conversation and graphic presentation such as affinity diagram. For most students, it was their first time when they studied something without the

guidance of professors, expressed their opinions, and persuaded other students with logic and rhetoric.

One small project of this course is the proposal of a business plan. After the initial presentation, the students revised their ideas with the feedback from other students. Since this was a practice to present and revise ideas, the proposals themselves rather lacked originality and feasibility (Table 4).

#	Topic
1	Work Child Rearing Balance
2	Anti Food Loss Project
3	Mental Support for Children
4	Ride Share
5	Community Building with SNS
6	Smart Ring

Table 4: Business Plan

Figure 1 is the self -assessment of soft skills among six students before and after the course. Interestingly, the students thought that their soft skills were well-rounded in the beginning, but in the end, they felt that they did not have enough soft skills. This indicates that for most students, ideation, leadership, communication, and self-understanding were abstract ideas, but after a series of group works and communication, they fully understood that they were short in those skills.

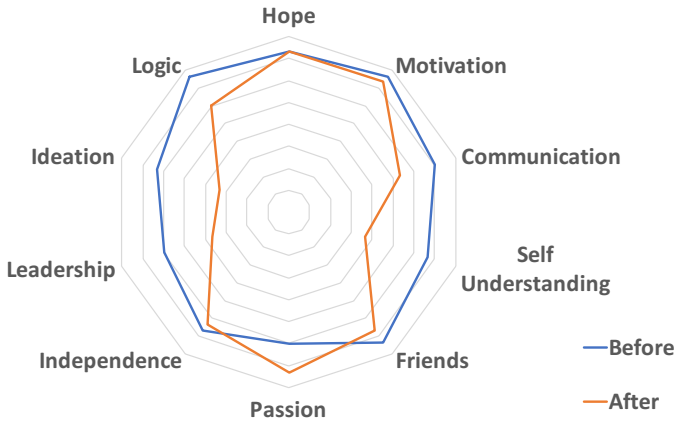

Figure 1: Self Evaluation

“Creative Mind & Methods” is a practice of design thinking which consists of empathize, define, ideate, prototype, and test (Figure 2). The students were divided into two groups of five and were given the topic: developing a product which carries out the task with one hand. One group chose to develop a cloth hanger, and the other group did a wrapping opener. To empathize, the students tried to hang a cloth or to unwrap a candy with one hand. Then they analyzed their observation to make a customer journey map which is a matrix of behavioral sequence, and emotion, thinking, and tasks. Based on the matrix, the students identified the location of problems, exchanged ideas, made prototypes with cardboard and styrofoam, and tested them. At the end of the course, the students made a presentation with their

products and received reviews. The role of the instructor was minimal. He left the class open for the trail and errors of students. The students worked spontaneously, were fascinated by prototyping, and felt a sense of achievement for their products. Making a product promotes communication and collaboration much more than abstract discussion. This type of prototyping requires no special knowledge and skills, however, it maximally drew the students' engagement The instructor commented that the enthusiasm of the students was no different from that of his art university.

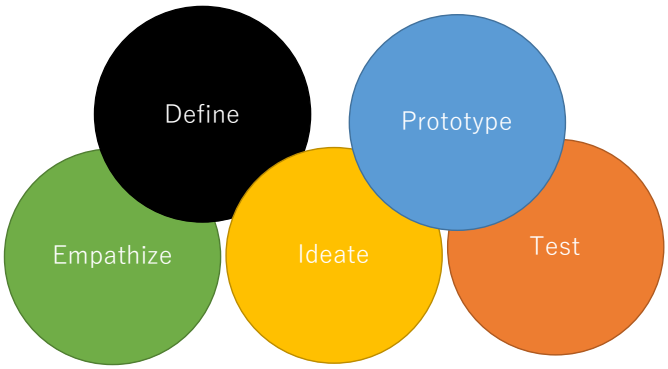

Figure 2: Process of Design Thinking

Conclusions

From the first two experiments of the innovation education at Kanazawa University, it can be said that the passive attitude toward learning and the weak communication skills of Japanese students can be improved significantly. The students simply do not have a chance to develop soft skills during their secondary education and higher education. Particularly, hands-on experiences are effective. All the universities have to do is to build active learning studios, to offer classes with small students, and to give faculty members a proper guidance for hands-on learning.

In most course works, students do not have enough chance to develop soft skills nor to pursue their originality. This is a serious problem at the age of knowledge-based society where originality is valued more than anything else. Along with research experience in senior thesis, Japanese university education should give more hands-on experience to students at an early stage of undergraduate education. These days, Project-Based Learning and student projects are gradually added to undergraduate curriculum, however, they often stand alone and lack a coordination with the system of specialization. There is a great room for interaction and engagement in Japanese higher education, both of which active learning is working on.

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The International Academic Forum (IAFOR)
Sakae 1-16-26-201
Naka Ward, Nagoya, Aichi
Japan 460-0008
ww.iafor.org