SEACE

THE SOUTHEAST ASIAN CONFERENCE ON EDUCATION

SINGAPORE | FEBRUARY 7–9, 2020

CONFERENCE PROCEEDINGS

Organised by The International Academic Forum (IAFOR) in partnership with Singapore Management University (SMU), the IAFOR Research Centre at the Osaka School of International Public Policy (OSIPP) at Osaka University, and IAFOR's Global University Partners.

ISSN: 2435-5240

"To Open Minds, To Educate Intelligence, To Inform Decisions"

The International Academic Forum provides new perspectives to the thought-leaders and decision-makers of today and tomorrow by offering constructive environments for dialogue and interchange at the intersections of nation, culture, and discipline. Headquartered in Nagoya, Japan, and registered as a Non-Profit Organization (一般社団法人) , IAFOR is an independent think tank committed to the deeper understanding of contemporary geo-political transformation, particularly in the Asia Pacific Region.

INTERNATIONAL

INTERCULTURAL

INTERDISCIPLINARY

iafor

The Executive Council of the International Advisory Board

Mr Mitsumasa Aoyama
Director, The Yufuku Gallery, Tokyo, Japan

Lord Charles Bruce
Lord Lieutenant of Fife
Chairman of the Patrons of the National Galleries of Scotland
Trustee of the Historic Scotland Foundation, UK

Professor Donald E. Hall
Herbert J. and Ann L. Siegel Dean
Lehigh University, USA
Former Jackson Distinguished Professor of English and Chair of the Department of English

Professor Arthur Stockwin
Founding Director of the Nissan Institute for Japanese Studies & Emeritus Professor
The University of Oxford UK

Professor Chung-Ying Cheng
Professor of Philosophy, University of Hawai'i at Manoa, USA
Editor-in-Chief, The Journal of Chinese Philosophy

Professor Steve Cornwell
Professor of English and Interdisciplinary Studies, Osaka Jogakuin University, Osaka, Japan
Osaka Local Conference Chair

Professor A. Robert Lee
Former Professor of English at Nihon University, Tokyo from 1997 to 2011, previously long taught at the University of Kent at Canterbury, UK

Professor Dexter Da Silva
Professor of Educational Psychology, Keisen University, Tokyo, Japan

Professor Georges Depeyrot
Professor and Director of Research & Member of the Board of Trustees
French National Center for Scientific Research (CNRS) & L'Ecole Normale Superieure, Paris, France

Professor Johannes Moenius
William R. and S. Sue Johnson Endowed Chair of Spatial Economic Analysis and Regional Planning
The University of Redlands School of Business, USA

Professor June Henton
Dean, College of Human Sciences, Auburn University, USA

Professor Michael Hudson
President of The Institute for the Study of Long-Term Economic Trends (ISLET)
Distinguished Research Professor of Economics, The University of Missouri, Kansas City

Professor Koichi Iwabuchi
Professor of Media and Cultural Studies & Director of the Monash Asia Institute, Monash University, Australia

Professor Sue Jackson
Professor of Lifelong Learning and Gender & Pro-Vice Master of Teaching and Learning, Birkbeck, University of London, UK

Professor Sir Geoffrey Lloyd
Senior Scholar in Residence, The Needham Research Institute, Cambridge, UK
Fellow and Former Master, Darwin College, University of Cambridge
Fellow of the British Academy

Professor Keith Miller
Orthwein Endowed Professor for Lifelong Learning in the Science, University of Missouri-St.Louis, USA

Professor Kuniko Miyanaga
Director, Human Potential Institute, Japan
Fellow, Reischauer Institute, Harvard University, USA

Professor Dennis McInerney
Chair Professor of Educational Psychology and Co-Director of the Assessment Research Centre
The Hong Kong Institute of Education, Hong Kong SAR

Professor Brian Daizen Victoria
Professor of English
Fellow of the Oxford Centre for Buddhist Studies

Professor Michiko Nakano
Professor of English & Director of the Distance Learning Center, Waseda University, Tokyo, Japan

Professor Thomas Brian Mooney
Professor of Philosophy
Head of School of Creative Arts and Humanities
Professor of Philosophy and Head of School of Creative Arts and Humanities, Charles Darwin University, Australia

Professor Baden Offord
Professor of Cultural Studies and Human Rights & Co-Director of the Centre for Peace and Social Justice
Southern Cross University, Australia

Professor Frank S. Ravitch
Professor of Law & Walter H. Stowers Chair in Law and Religion, Michigan State University College of Law

Professor Richard Roth
Senior Associate Dean, Medill School of Journalism, Northwestern University, Qatar

Professor Monty P. Satiadarma
Clinical Psychologist and Lecturer in Psychology & Former Dean of the Department of Psychology and Rector of the University, Tarumanugara University, Indonesia

Mr Mohamed Salaheen
Director, The United Nations World Food Programme, Japan & Korea

Mr Lowell Sheppard
Asia Pacific Director, HOPE International Development Agency, Canada/Japan

His Excellency Dr Drago Stambuk
Croatian Ambassador to Brazil, Brazil

Professor Mary Stuart
Vice-Chancellor, The University of Lincoln, UK

Professor Gary Swanson
Distinguished Journalist-in-Residence & Mildred S. Hansen Endowed Chair, The University of Northern Colorado, USA

Professor Jiro Takai
Secretary General of the Asian Association for Social Psychology & Professor of Social Psychology
Graduate School of Education and Human Development, Nagoya University, Japan

Professor Svetlana Ter Minasova
President of the Faculty of Foreign Languages and Area Studies, Lomonosov Moscow State University

Professor Yozo Yokota
Director of the Center for Human Rights Affairs, Japan
Former UN Special Rapporteur on Myanmar

Professor Kensaku Yoshida
Professor of English & Director of the Center for the Teaching of Foreign Languages in General Education, Sophia University, Tokyo, Japan

The IAFOR Southeast Asian Conference on Education 2020

Official Conference Proceedings

ISSN: 2435-5240

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

Table of Contents

"An Analysis on the Use of Document-Based Approach as an Effective Tool in Teaching and Learning Social Studies"

Joan Doctor, De La Salle University, Philippines

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract

Document-based approach is characterized by the use of primary or secondary documents that includes an overarching investigative question that the student must answer through analysis of the documents included. The paper is an experimental study that aims to venture out a new way of teaching Social Studies by using a document-based approach to find out the effectiveness of this strategy for both students and teachers. Two outcomes were tested: student's learning and effective teaching strategy. In obtaining the data, the researcher used One-Group Pre-Test-Post-Test-Design under pre-experimental design. One class of Grade 12 HUMSS students in STI College Novaliches were purposely selected for this research. The study was implemented over a three-day instructional period during a 60-minute block of Social Studies instruction. Two different instruments were designed to test the hypothesis and measure the effectivity of document-based approach for both students and teachers. For the students, the data were analyzed using their scores from a self-designed test under document-based approach. For the teachers, a self-designed Likert Scale was designed to evaluate the effectiveness and acceptability rate of document-based education in Senior High School students. The results of the study showed a significant difference in teaching and learning Social Studies. Thus, the use of document-based approach will be of great help to teachers and students for teaching and learning. This research will contribute in making Social Studies practical and memorable for all students.

iafor
The International Academic Forum
www.iafor.org

I. Introduction

Social Studies is defined by the National Council for Social Studies as *"the integrated study of the social sciences and humanities to promote civic competence"*. It is included in the Basic Education Curriculum and Commission on Higher Education and being taught in schools as early as elementary, high school, up to the tertiary level. Typically, with the introduction of the new K+12 curriculum, an elementary student begins with the most basic elements of geography, civics, and Philippine history, and gradually progressing to Asian History, World History, Economics, and Contemporary Issues in Philippine History in the middle school. An even more in-depth discussion in the tertiary level includes the study of Philippine Constitution and Governance, the life and works of Rizal, and Advance Economics.

All of the topics mentioned should be geared towards the development of holistically developed citizens who is aware and knowledgeable of social issues and concerns in the local and global level. Teachers have a very big role in achieving this standard and competency expected to a student. Unfortunately, because of the highly objective and comprehensive nature of the subject, most of the students find it boring and disinteresting. Most of the teachers struggle to find out ways to make the subject lively and interesting to students. Traditionally, it is taught by using a lecture-based approach and requires the students to memorize facts and concepts. At present, because of the unlimited access of information due to the emerging technology, most of the students found the traditional approach irrelevant since they can just search whatever they want in the internet with just one click.

In this experimental study, the researcher aims to venture out a new way of teaching social studies by using a document-based approach to find out the effectiveness of this strategy for both students and teachers. Document-based approach is characterized by the use of primary resources and/or secondary documents that includes an overarching investigative question that the student must answer through analysis of the documents included.

In conducting this research, the researcher primarily sought to answer if document-based education would be an effective approach in teaching Social Studies. The primary question in this research was:

- Was the use of document-based approach have a significant effect to teaching and learning among Grade 12 HUMSS student at STI College Novaliches?

The specific questions addressed by the researcher were the following:

- Was there a significant effect on the retention of the learners in Social Studies when they were taught using document-based approach?
- Would the use of document-based approach be an effective tool in teaching Social Studies?

Based on these questions, the following hypotheses were tested using the variables below:

- **INDEPENDENT VARIABLE:** Use of Document-based Approach
- **DEPENDENT VARIABLE:**

1) Student's Learning
2) Effective Teaching Strategy

Ho: The use of Document-based Approach has no significant effect in teaching and learning Social Studies.

Ha: The use of Document-based Approach has a significant effect in teaching and learning Social Studies.

The researcher attempted to show that the use of document-based approach have a significant effect in teaching and learning Social Studies. With this in line, the researcher made the following assumptions before the implementation of the study:

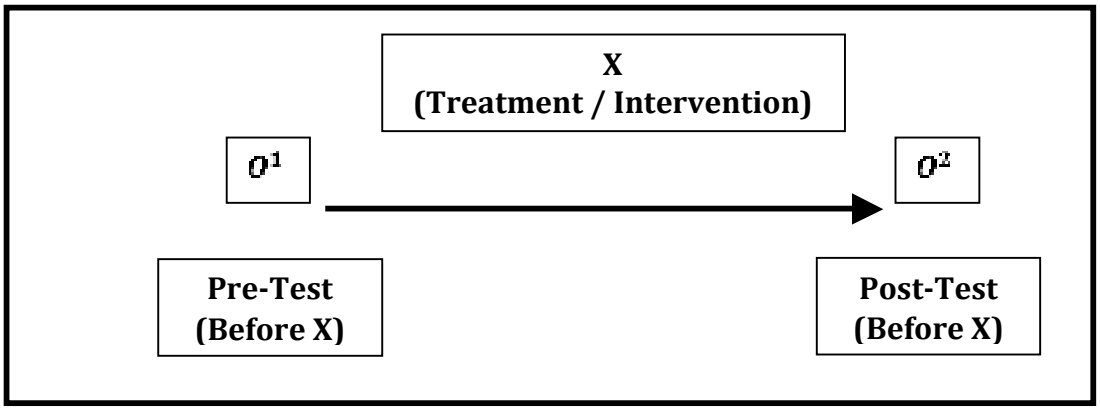
1. The learners in this study were academically capable of answering the questions truthfully.
2. The learners have prior knowledge to the subject since they are all Grade 12 students and already took the subject when they were in Junior High School.
3. The teachers who evaluated the experiment were capable of assessing the teacher's performance, as they were all practitioners in the field of education.
4. All the materials used by the researcher were valid instruments.

The researcher delimited the study to the following criteria:

1) Students who were in any of the following days: pre-test, intervention/experiment, and/or post-test;
2) Students who dropped out of classes (non-attending) during the semester;
3) Students who transferred out to another school during the time when the experiment was conducted;
4) Students who were excused due to school activities.

II. Methodologies

The researcher utilized *One-Group Pre-Test-Post-Test-Design* under pre-experimental Design. According to Ariola (2006), Pre-Test-Post-test-Design, also called as one-group design, has "no control group or control variable. A pre-test is conducted before the treatment or intervention is introduced (O^1). After some time, a test is again repeated (O^2). Then the results of the pre-test (before survey) and the post-test (after survey) are compared to determine the change." The experiment were utilized based on the illustration below:



The study was implemented over a three-day instructional period during a 60-minute block of Social Studies instruction. The series of experiments were conducted as follows:

- First day (October 10): Pre-testing
- Second day (October 12): Lecture proper / Intervention
- Third day (October 13): Post-testing

The research sample were selected using the Purposive Sampling. It is a type of non-probability sampling that is selected based on the characteristics of a population and the objective of the study. For this study, one class of Grade 12 HUMSS students were selected since they were specializing in the field of Social Sciences. There are 2 sections of Grade 12 HUMSS in STI College Novaliches – one in the morning and one in the afternoon. The researchers selected HUMSS201 due to the availability of the schedule and convenient time for the teachers. As mentioned in the previous part, the study delimited the participants to those students who were present during the pretest, intervention, and posttest. Out of 30 students in the class, 15 students were qualified as participants of the study (see Appendix D).

Two different instruments were designed to test the hypothesis and measure the effectivity of document-based education for both students and teachers. For the students, one class were instructed using the document-based education. The group were given the same coverage of achievement test during pre-test and and jumbled the items in the post-test to measure student's learning (see Appendix B and C). Criteria for the test included the basic knowledge, comprehension of the content, and analysis of the content learned. The tests covered the topic that was discussed during the intervention. All those students who were present during the pretest and posttest took and completed the test, but the researcher only picked the test scores of those students included in the sample (see Appendix E for raw scores from pretest and posttest).

In order to test the second hypothesis pertaining to the teachers, a self-designed Likert scale was designed to evaluate the effectiveness and acceptability rate of document-based education in Senior High School Students (see Appendix F). The survey was designed for the teachers to evaluate the approach that was used if it was executed successfully and also to check the engagement of the student. The survey was administered on the actual time and date of the intervention.

The unit plan covered the factors of the Fall of Rome in different aspects. The lesson plan that was prepared followed the basic instructions provided in the teacher's guide (see Appendix A). To control for teacher bias in scoring the results, a rubric was provided in the questionnaire. Moreover, the teacher also prepared an answer key on all evaluation material.

III. Results

The data in this part were analyzed, interpreted, and presented in a tabular and textual form.

In order to test the hypothesis, the following statistical treatment were used:

1) **Weighted Mean:** Each item being averaged is multiplied by a number (weight) based on the item's relative importance. The result is summed and the total is divided by the sum of the weights.

$$\overline{\chi}_{\mathbf{w}} = \frac{\sum \mathbf{w}_i \mathbf{w}_i}{\sum \mathbf{w}_i}$$

The researcher utilized this to measure the acceptability rate of document-based approach in teaching Social Studies. A set of self-designed questionnaire was used for the teachers to evaluate the effectiveness of this approach.

2) **Two-tailed *t-test***: A two-tailed t-test divides a in half, placing half in the each tail. The null hypothesis in this case is a particular value, and there are two alternative hypotheses, one positive and one negative. The critical value of t, t_{crit}, is written with both a plus and minus sign (±).

$$t = \frac{(\overline{x_1} - \overline{x_2}) - (\mu_1 - \mu_2)}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

The *t-test* was utilized to determine whether there is a significant difference between the means of both pretest and posttest.

Table 1.1 Profile of Students in Terms of Sex		
Sex	**Frequency**	**Percentage**
MALE	**4**	**27%**
FEMALE	**11**	**73%**
TOTAL	**15**	**100%**

Table 1.2 Profile of Teachers in Terms of Sex		
Sex	**Frequency**	**Percentage**
MALE	**4**	**40%**
FEMALE	**6**	**60%**
TOTAL	**10**	**100%**

Table 1. Profile of the Respondents in terms of Sex

On Sex. The study presents a total of 15 students from HUMSS 101 as the experimental group and 10 teachers who will evaluate the demonstration. The profile of the students in Table 1.1 shows that most of the respondents are female with a percentage of 73% while the remaining are male with a total percentage of 27%. In table 2.2, most of the teachers who evaluated the study are female with a percentage of 60% and male with 40%.

Table 2. Acceptability Rate of Document-based Education as an Approach in Teaching Social Studies

CRITERIA	5 Highly Observed	4 Moderately Observed	3 Observed	2 Rarely Observed	1 Not observed	Weighted Mean	Verbal Interpretation
The instructor effectively presented information, concepts, and ideas of the field.	100%	0%	0%	0%	0%	5.00	Highly observed
The students were actively engaged and participative during the entire period because of the approach that was used by the instructor.	70%	30%	0%	0%	0%	4.70	Highly observed
The documents provided by the instructor really helped the learners to understand the lesson.	90%	10%	0%	0%	0%	4.90	Highly observed
The students were able to answer the questions asked by their teacher using the documents provided to	90%	10%	0%	0%	0%	4.90	Highly observed

them.							
The teacher was able to connect the answers of the students coming from the documents to discuss the lessons.	100%	0%	0%	0%	0%	5.00	Highly observed
The use of document-based education were used in the class effectively.	100%	0%	0%	0%	0%	5.00	Highly observed
AVERAGE WEIGHTED MEAN						4.88	Highly observed

INTERPRETATION

Interval	Scale	Verbal Interpretation
4.21-5.00	5	Highly Observed
3.41-4.20	4	Moderately Observed
2.61-3.40	3	Observed
1.81-2.60	2	Rarely Observed
1.00-1.80	1	Not Observed

The following criteria were evaluated with the highest descriptive rating "Highly Observed" with the mean score of ($\bar{x}$ = 5.00):

- The instructor effectively presented information, concepts, and ideas of the field.
- The teacher was able to connect the answers of the students coming from the documents to discuss the lessons.
- The use of document-based education were used in the class effectively.

The criteria *"The documents provided by the instructor really helped the learners to understand the lesson"* and *"The students were able to answer the questions asked by their teacher using the documents provided to them"* were both evaluated with the mean score ($\bar{x}$ = 4.90), that equivalent to "Highly Observed" rating.

The lowest criteria in the table was the criteria "The students were actively engaged and participative during the entire period because of the approach that was used by the instructor" *evaluated* with the mean score ($\bar{x}$ = 4.70), still equivalent to "Highly Observed" rating.

Average Weighted Mean. Therefore, with the overall mean score of $\bar{x}$ = 4.88 equivalent to a "Highly Observed" descriptive rating, the researcher concludes that the use of document-based approach is highly acceptable in teaching Social Studies.

Table 3. Comparison of Pretest and Posttest Scores of the Sample Respondents

Test	Number	Mean	Standard Deviation	Computed *t* Value	Tabular *t* Value	Decision	Verbal Interpretation
Pretest	15	5.6	0.84	6.68	2.145	Reject Ho	Significant
Posttest	15						

On Two-tailed *t-test.* With 14 degrees of freedom, it can be seen from Table 3 that the computed *t* value of 6.68 is significant beyond the o.o5 level. Thus, the null hypothesis of pretest and posttest mean equivalence is rejected and infers that the use of document-based approach was effective on the performance of 15 students.

IV. Discussion

The results of the study indicated that there is a significant difference in teaching and learning Social Studies using the document-based approach. The results of pretest and posttest significantly increase with a *t value* of 6.68, which shows that the document-based approach was effective in the performance of the students. Moreover, through the evaluation of teachers, it was shown that the use of document-based approach was highly acceptable with an average weighted mean of $\bar{x}$ = 4.88 equivalent to a "Highly Observed" descriptive rating. Thus, the researcher accepts the alternative hypothesis (Ha) and rejects the null hypothesis (Ho).

The results justify the effectiveness of the document-based instructional strategy in teaching Social Studies. Astorian (2016) emphasizes that there is an evident need in using document analysis in the teaching of Social Studies since this will lead to the usage of primary sources that will make students improve their social studies-related skills. Clabough (2012) added that social studies teachers should come up with substantial and useful materials that will expose them and their students to the value of using primary sources as documents for studying history. Hence, multifarious suggestions on the practice of document-based teaching are provided. This practice has even extended to different media such as the new media. In the United States for example, there is a blog called The DBQ

(Document-based Question) Project which is used to provide materials for teacher to guide students in learning history more effectively through examining documents. As this project uses document-based teaching strategy, it gives more "authentic assessment" since students are exposed to various sources which they are required to explain comprehensively, evaluate, relate to their prior knowledge and experiences, and come up with outputs that are completely based on critical analysis (DBQ Project, 2018).

This research concludes that the document-based strategy is an effective approach in teaching and learning Social Studies. The researcher believes that the use of this strategy is great of help in making Social Studies practical and memorable for all the students. However, the research is not extensive enough to represent the overall instruction of Social Studies in the country. More research must be done to test the practicality of this approach to other context.

Bibliography

Astorian, L. b. (2016). Implementing Document-based Lessons in High School Classrooms: A Case Study of World History Teachers‟ Perspectives and Practices. Kenesaw State University

Clabough, J.C. (2012). Educators‟ Perceptions about the Uses of Primary Sources in Social Studies Classroom. University of Tennessee. Retrieved from: http://trace.tennessee.edu/utk_graddiss/1283

Hierl, W. (2018). APPARTS Strategy: Origins and Implementation. National History Educational Clearing House. Retrieved from https://teachinghistory.org/teaching-materials/ask-a-master-teacher/24711

Inocian,R. B. (2014). Social Studies Teachers‟ Proclivities to Teach World History in the New K-12 – Junior High School Curriculum in the Philippines/ Department of Behavioral and Political Studies, Cebu Normal University. Retrieved from https://eujournal.org/index.php/esj/article/viewFile/3543/3315

Schug, M. C. (1982). Why Kids Don’t Like Social Studies. Retrieved from: https://files.eric.ed.gov/fulltext/ED224765.pdf

The DBQ Project. (2018). Authentic Assessment. Retrieved from: http://www.dbqproject.com

Tindal, C. L. (1996). A Comparison of Teaching Social Studies Using Traditional TextbooK Approach versus Using a Literature-based Approach. Retrieved from: https://files.eric.ed.gov/fulltext/ED401198.pdf

Quality of Mentoring and Personal Attributes as Correlates of Professional Competencies among Librarians of Region 10: Basis for Capacity Building Program

Melody A. Retazo, Lourdes College, Philippines

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract
It is essential for librarians to advance professionally. The professional competencies of librarians that were acquired through education and library practice may no longer be relevant for the jobs that have been changed or redesigned by technology. Thus, this study determined the association between the head librarians' quality of mentoring and personal attributes and the librarians' level of professional competencies. The respondents were the professional librarians in Northern Mindanao. Mixed method and standardized survey instruments were used in the study. Data were analysed using percentage, mean, Pearson's r, t-test and Anova. The findings of the study revealed that the quality of mentoring and personal attributes of head librarians is to a great extent as assessed by the librarians which includes career advancement and psychosocial support. The librarians' assessment of their level of professional competencies showed "high" in both their hard and soft skills. It was further disclosed that there was a significant association between the head librarians' quality of mentoring and personal attributes and the librarians' level of professional competencies. It is then concluded that head librarians are driven, committed, and engaged to enhance the professional competencies of the librarians. It is recommended that library administrators may consider planning, designing and implementing a mentoring program to further enhance and maintain the professional competencies of librarians.

Keywords: Mentoring, Competencies, Hard Skills, Soft Skills

iafor
The International Academic Forum
www.iafor.org

Introduction

Behind the success of an individual is a mentor. Mentor plays a significant role in the development of professional competencies of an individual. With the advancement of technology and the complex information needs of diverse clients brought a significant change in the library profession. As the library environment changed, it is essential for librarians to advance professionally. The professional competencies of librarians that were acquired through education and library practice may no longer be relevant for the jobs that have been changed or redesigned by technology. The competencies required to satisfy these demands are often acquired on the job, especially with the support and versed librarians.[1] Thus, the need for mentoring librarians to become as savvy as the clients they serve.

In addition, professional competencies refer to the practitioner's knowledge of information resources, access, technology and management, and the ability to use this knowledge as a basis for providing the highest quality information services.[2] Recognizing the need for enhancing and maintaining high ethical, moral and professional standards of librarianship, the Professional Regulatory Board for Librarians released the Resolution No. 3, Series of 2015 on the Prescription, Adoption and Promulgation of National Competency – Based Standards for Filipino Librarians. Moreover, this Competency – Based standards focuses on furthering the development of core competencies that Librarians, should exemplify in practice: communication, customer service, leadership, lifelong learning and personal growth, ethics and values, managing information resources, managing information services, managing information tools and technologies, and managing information organizations. Furthermore, competency standards or competencies are statements about a work role that are used to assist with credentialing, which in turn is a system that ensures individuals' competence to practice. Competency development is a key element of workforce development and refers to the attainment of a set of knowledge, skills and attitudes that enable effective performance in the workplace.[3]

Indeed, the head librarian plays a significant role in keeping the librarians professional competencies through mentoring. Spencer and Ard believe that mentoring is designed to encourage development of management competencies.[4] Furthermore, the competencies are often gained through examples, guided practice or experience than by education and training.

---

[1] Idoko, N., Ugwuanyi, R., &Osadebe, N. (2016).Mentoring: a strategy for professional development of librarians in Nigerian Universities. 1- 19.

[2] Abels, E. (2009). *Competencies for Information Professionals of the 21st Century.* Retrieved from www.sla.org/competenciesportal.

[3] Australian Public Health Nurtirion (2008). Retrieved October 11, 2018, from *Australian Public Health*
Nurtirion Academic Collaboration: ttp://www.aphnac.com/workforce.php.

[4] Spencer, B., & Ard, A. (2006). Nurturing new careers; preparing future librarians for their careers through pre- professional development sessions at the university of Alabama libraries. *Electronic Journal of Academic and special Librarianship*, 7(2), 1-10.

In today's environment librarians face rapid changes in technology, information overload, and complex information needs from diverse clients. The dynamic environment of the library and information sector stresses the need for librarians to remain flexible and adaptable to change. To meet this need, they have to ensure that their knowledge, competencies and skills meet the needs of the community they serve. Similarly, employers have a responsibility to provide opportunities for librarians to keep their skills, knowledge and competencies up-to-date. Nevertheless, there is lack of studies that integrate the concepts of quality of mentoring and its influence in the librarians' level of professional competencies. In this regard, the contribution of this study will be significant.

The above perspectives brought the researcher into a strong position to look into the significant relationship between the head librarian's quality of mentoring and the Region 10 librarian's level of professional competencies in order to prepare librarians greater productivity or achievement in the future with the end view of proposing a capacity building program for this group of professionals.

Conclusion

Findings of this study provide evidence that quality of mentoring and personal attributes of head librarians such as career advancement and psychosocial support have greatly contributed to their librarians' level of professional competencies both in soft skills and hard skills. The mentoring relationship between the head librarians and librarians affects the development of their competencies. It is interesting to note that head librarians are good mentors, they are driven, committed, and engaged to enhance the professional competencies of their librarians by examples, guided practice, transferring their knowledge through their stories of success and failures, sharing of personal wisdom, providing high profile and challenging assignments. Despite the positive findings of the study, complacency does not play in a dynamic organization. Hence, more have to be done to further enhance and maintain the professional competencies of librarians.

References

Abels, E. (2009). *Competencies for Information Professionals of the 21st Century.* Retrieved from www.sla.org/competenciesportal.

Australian Public Health Nurtirion (2008). Retrieved October 11, 2018, from *Australian Public Health Nurtirion Academic Collaboration*: ttp://www.aphnac.com/workforce.php.

Idoko, N., Ugwuanyi, R., &Osadebe, N. (2016).Mentoring: a strategy for professional development of librarians in Nigerian Universities. 1- 19.

Spencer, B., & Ard, A. (2006). Nurturing new careers; preparing future librarians for their careers through pre- professional development sessions at the university of Alabama libraries. *Electronic Journal of Academic and special Librarianship*, 7(2), 1-10.

Improving Mathematics Vocabulary Learning in the Foundation Phase

Xiaotian Han, Shanghai Normal University Tianhua College, China
Official Conference Proceedings

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract
Mathematics is more than numbers. Students should be able to understand and use academic vocabulary to think about and discuss mathematical situations. However, vocabulary learning within the mathematical contexts could be very complex and challenging to students, especially for English Learners. The purpose of this study aims to synthesize literature and present a review regarding the vocabulary learning challenges of mathematics in the foundation phase. Peer-reviewed articles (N=42) are gained from Google Scholar via systematically searching key words "mathematics vocabulary" with one or more of the following terms: challenge, difficulty, error, discourse, and analysis. Lee's (2005) study is applied as the theoretical framework. It formulated three main features of vocabulary in the mathematics contexts: same meaning words (same meanings in ordinary English and mathematics, such as discount, and total), math-specific words (technical math words, such as coefficient and linear equation), and multiple- meaning words in ordinary English and mathematics (such as even and function). This study shows a variety of challenges in mathematics vocabulary learning. Also, the study provides suggestions in learning practice and instructional strategies in order to help teachers support students to improve their mathematics vocabulary learning in the foundation phase.

Keywords: mathematics vocabulary, instructional strategies

iafor
The International Academic Forum
www.iafor.org

Introduction

It is common in a mathematics classroom that students do not read the entire problems but just pay attention to numbers when they are solving word problems (Fatmanissa & Kusnandi, 2017). However, mathematics is more than numbers. It lives on its own system that includes symbols, technical language, and concepts. Some words have the same meanings within mathematical contexts as in the daily language. Others are "learned almost entirely at school and are not spoken at home" (Kenney, Hancewicz, Heuer, Metsisto, & Tuttle, 2005, p. 3). Therefore, it is true that developing mathematical vocabulary is like/resembles learning a foreign language (Bicer, Boedeker, Capraro, & Capraro, 2015). When there is a new vocabulary introduced to students, it must be taught and explained clearly. Vocabulary is strongly correlated to reading comprehension, students' comprehension prediction, and content area learning (Espin & Foegen, 1996; Fitzgerald & Graves, 2005; Fisher & Frey, 2008). Only when students understand the new words can they achieve the expectation of "using the language of mathematics to express mathematical ideas precisely" (NCTM, 2000, p. 268).

Developing mathematics language in the classroom is also emphasized by NCTM Process Standards (2010) and the CCSS Mathematical Practice Standards (2010). In NCTM Process Standards, the usage of mathematical vocabulary is the foundation of problem solving, reasoning and proof, and communication. In CCSS Mathematical Practices, students are expected to apply language in the content areas as follows: (a) make sense of problems and persevere in solving them, (b) critique the reasoning of others, and (c) construct viable arguments.

Moreover, researches indicated the indispensable role of vocabulary learning in mathematics. Miller (1993) points out, "without an understanding of the vocabulary that is used routinely in mathematics instruction, textbooks, and word problems, students are handicapped in their efforts to learn mathematics" (p. 312). Smith and Angotti (2012) identify that "words are essential to a conceptual understanding of the lesson" (p. 45). Edgren (2008) pointed out that the obstacle of student low achievement in word problem solving is that students are lack of vocabulary acquisition, clarification of technical words, and class communication on the topic. Moreover, prior literature indicated that vocabulary is a significant predictor of reading comprehension that challenges most students (Blachowicz, Fisher, Ogle, & Watts-Taffe, 2006; Smith & Angotti, 2012). In addition, Schoenberger and Liming (2001) found out that students were weak in their thinking skills because of their use of mathematics vocabulary. If students develop their vocabulary knowledge, they would be easier to "expand their abstract reasoning ability and move beyond operations to problem solving"(Tyminski, 2013, p. 40). Therefore, improving mathematics vocabulary learning needs to be paid attention to.

However, vocabulary learning within the mathematical contexts could be very complex and challenging to students, especially for English Learners and students with diverse educational backgrounds. Teaching vocabulary in the mathematics context, appropriately, is also challenging for teachers. They may feel hard to determine when and how to teach. Bay-Williams & Livers (2009) discussed the dilemma in teaching vocabulary in class. Spending more time in vocabulary previewing means having less time for instruction in class and previewing math

content. Moreover, teachers concern that students may focus on finding out meanings of words instead of achieving the course objectives. In an effort of exploring the difficulties of vocabulary learning in mathematics, the purpose of this study aims to present a review and synthesize literature regarding the vocabulary learning challenges of mathematics in the foundation phase as well as effective strategies during instructions. The research questions are listed as follows:
(1) Why vocabulary learning is challenging for students in mathematics learning?
(2) What efficient instructional strategies could be applied in vocabulary learning within the mathematical contexts in the foundation phase?

Methodology

The study systematically searched peer-reviewed articles (N=42) from Google Scholar via using key words "mathematics vocabulary" with one or more of the following terms: challenge, difficulty, error, discourse, and analysis. However, only 38 of 42 articles could be assessed in the full text. After reading the abstracts and full texts, these research articles were categorized by periods of years (the period of 2011-2019, the period of 2001-2010, and studies before 2001), types of studies (empirical studies, non-empirical studies, and literature review), and content (including vocabulary teaching/learning challenges and strategies, only including vocabulary teaching/learning challenges, and only including vocabulary teaching/learning strategies).

Lee's (2005) study is applied as the theoretical framework, which is specifically applied in categorizing mathematical vocabulary teaching/learning challenges. It formulated four main features of vocabulary in the mathematics contexts: same meaning words (same meanings in ordinary English and mathematics, such as discount, and total), math-specific words (technical math words, such as coefficient and linear equation), multiple- meaning words in ordinary English and mathematics (such as even and function), and multiple-meaning words within mathematics (such as base and square).

Results

This study presented a review and analyzed 38 studies that provided both abstracts and full-texts about improving mathematics vocabulary learning in the foundation phase. See the table 1 below for more details.

Table 1: Description of Collected Peer-reviewed Studies.

Categories	Items	N=38
Periods of years	2011-2019	10
	2001-2010	24
	Before 2001	4
Type of studies	Empirical studies	16
	Non-empirical studies	19
	Literature Review	3
Content	Including challenges and strategies	17
	Only including challenges	21

Same-meaning words. Lee (2005) defined same meaning words as "words that have the same meanings in everyday language as they do in ordinary English – the words that are used to set mathematics in context" (p. 15). Same-meaning words are also known as context-related vocabulary, procedural vocabulary and descriptive vocabulary (Bay-Williams & Livers, 2009; Bowie, 2015; DiGisi & Fleming, 2005). Examples of same meaning words include: theatres, field, compare, grocery stores, wheat, etc. They are widely used in contexts and word problems. However, even though the words that are used in a mathematics classroom are the same as used in everyday situations, some issues existed and were discussed in prior researches. Bay-Williams & Livers (2009) argued that students might be unfamiliar to these vocabularies as related to their cultural relevance and low English proficiency. Students who live in the urban areas and who are English learners may not know or have learned these farming terminologies such as acre, coop, orchard, hay, seeds, etc. Students who have co-existing problems in literacy may find it even more difficult in reading word problems (Nagy, 1988; Schoenberger & Liming, 2001). Besides, Adams (2008) and Borgelt (2008) also concerned that students' low self-esteem and self-confidence in the content area could be a problem in applying and understanding same meaning words.

Math-specific words. Math-specific words are defined as "words that have a meaning only in mathematical language" (Lee, 2005, p. 15). Some researchers named it as discipline-specific words, technical vocabulary words or technical terms (Pierce & Fontaine, 2009; Skinner, Pearce, & Barrera, 2016). Examples of math-specific words could be perimeter, hexagonal, edge, hypotenuse, isosceles, coefficient, etc. Prior researches pointed out why students struggled with mathematical terms is because they only hear them in mathematics classroom and don't consider them as their primary discourse (Aflahah, 2018; Rubenstein, 2007; Kotsopoulos, 2007). Moreover, Ingram & Andrews (2018) explained another reason-- because math-specific words are used in a narrow range of topics and only be met when a topic is reviewed, therefore, it may be easier for students to misuse or misunderstand the definitions. In addition, data showed that students using math-specific terms orally more often than writing it down (Borgelt, 2008; Schoenberger, 2007). It means students may not know the correct spelling of these terms, identify these words, or connect terms with the concepts and operations in assignments and assessments. Besides, Lane, O'Meara, and Walsh (2019) demonstrated that pre-service mathematics teachers misuse and lack understanding of certain basic mathematics terminology. This may cause their students' misunderstanding on mathematics register and hamper students' learning progress. The study showed that pre-service mathematics are not fully prepared for vocabulary teaching, and universities did not prepare relative courses for them to teach mathematics literacy.

Multiple-meaning words. Lee (2005) defined multiple- meaning words as "words that have different meanings in mathematical language and natural language" (p. 15). It is also known as semi-technical terms, words shared with other disciplines (Rubenstein, 2007; Skinner et al., 2016). Table 2 listed some multiple-meaning words in the domains of number and quantity, algebra, functions, geometry, and statistics and probability. For example, the word "even" in ordinary English is an adjective and an adverb. Example sentences may be "The floor is even", "Breathing develops an even rhythm during sleep", and "Even a three-year-old child knows the answer" (California State Board of Education, November, 2013; p. 15). However, the word

"even" means differently in the mathematical context. Even numbers refer to the numbers that are multiples of two (i.e.: 2, 4, 6 and so on). An even function means any function.

The main challenge of multiple-meaning words learning is that students are struggling in inferring multiple-meaning words more accurately and fluently from different oral and written contexts (Nel, 2012; Kotsopoulos, 2007). "Sometimes we encounter problems when the technical words we use, as formal parts of mathematics, conflict with an everyday understanding or use of the same word, or related words" (Gough, 2007, p. 7). Halliday (1978) found it an easier job for students to develop the usage of language in new ways to serve new functions through schooling. Teachers should use oral language to unpack and explain the meanings in mathematics symbolism.

Other challenges. In addition, there are other challenges that were discussed in prior researches: (1) Extra time would be needed in teaching vocabulary or vocabulary teaching is not focused or fully prepared (Bay-Williams, & Livers, 2009; Blessman & Myszczak, 2001; Georgius, 2008; Solomon, 2009). Aflahah (2018) argued that teachers encountered challenges in providing vocabulary acquisition because "their university education did not fully prepare them to teach them explicitly in this way" (p. 60); (2) Students have low confidence and self-esteem in the area of mathematics learning (Adams, 2008; Borgelt, 2008; Winsor, 2007); (3) Students misunderstand the definitions or cannot connect the words to the operation (Adams, 2008; Sepeng & Madzorera, 2014); (4) Students meet cultural difference and/or have low English Language proficiency (Barwell, 2008; Borgelt, 2008; Hebert & Powell, 2016; Meier & Trevitt, 2010; Smith & Angotti, 2012).

Table 2: Multiple-meaning words in mathematics and everyday situations

Number & Quantity	Algebra	Functions	Geometry	Statistics & Probability
Even	Variable	Function	Degree	Mode
Odd	Relation	Relationship	Right (angle)	Average
Operation	Power	Base	Measure	Median
Order	Expression	Exponent	Similar	Range
Prime	Domain	Outlier	Reflection	Probability
Produce	Formula		Regular	
Power	Notation		Imaginary	
Reminder			Extreme	

Effective Strategies in Mathematics Vocabulary Learning

Mathematics vocabulary is closely bound with mathematical conceptual understanding so it should be taught as a partial requirement in class (Dunston & Tyminski, 2013; Orton, 2004). Visualization strategy, class interactions, and intra-personal learning strategies were three main methods discussed in the prior researches. The prime strategy that researchers discussed and that appeared effective is visualization strategy. Visualization strategy is a general instructional method via visual tools such as color coding, graphic organizers, word lists, etc. It provides visual aids for students to understand abstract terms and concepts. Adams (2008) applied graphic organizers to help students connect technical terms with other words, which in turn helped students feel that the contents and concepts are meaningful and useful

rather than isolated. The result showed that students' confidence of mathematics and the use of the math language appear to have grown. Borgelt (2008) examined how the vocabulary lists affected students' mathematics learning in using specific vocabulary precisely and improving their self-confidence. The author employed an action research for a 8th grade class and self-reflected, "if I write the vocabulary word on the board as I work with the problem, the students will look up and use it as they discuss the problems - I think I will keep writing them up there" (Borgelt, 2008, p. 35). Apparently, the repetition of hearing and seeing provided more access to students.

Moreover, Edgren (2008) examined whether improving vocabulary acquisition would increase students' ability to communicate mathematically and attempt word problems via a variety of strategies. This action research reported that word wall, as a visual aids, is useful and would be kept, with its usage getting varied. Also, other strategies, such as grouping, association, physical activities, and journal, are effective in both improving students' technical words acquisition and helping them solve word problems. In addition, Aflahah (2018) proposed that gestures could also be applied as one of the visual aids in math classes in consideration of the shortage of school supplies.

Besides, research studies showed the effectiveness of combining visual tools to other teaching strategies. The intervention of using graphic organizers and mathematical vocabulary dictionary illustrated a positive effect on students' mathematics vocabulary building. Jennifer & Beverly (2001) demonstrated that there was an increasing of 15% and 47% students exhibiting a high level of understanding of the vocabulary checklist one and checklist two respectively. Moreover, the usage of direct methods via using text cards, word lists, graphic organizers and word games in contextual learning illustrated its effectiveness in mathematics classes. Contextual learning enables "students to witness the process and actions behind the vocabulary, allowing students to create a mental image" (Bicer, et al, 2015, p. 71). The study employed a t-test to assess student vocabulary knowledge and the results showed that this PBL instruction displayed a statistically significant improvement in the mathematical vocabulary knowledge of students. Therefore, combining visualization strategy to class interactions and/or intrapersonal tools are also effective in vocabulary learning in the mathematical context in the foundation phase.

Reference

Adams, V. (2008) Building confidence in low achievers through building mathematics vocabulary. *Action Research Projects*. 15. Retrieved from http://digitalcommons.unl.edu/mathmidactionresearch/15

Aflahah, S. (2018). Why are language and literacy important in understanding mathematics? *Literacy Learning: the Middle Years, 26*(3). 58-63.

Barwell, R. (2008). ESL in the mathematics classroom. *What Works? Research Into Practice*. Retrieved from http://edu.gov.on.ca/eng/literacynumeracy/inspire/research/whatWorks.html

Bay-Williams, J., & Livers, S. (2009). Supporting math vocabulary acquisition. *Teaching Children Mathematics*. Nov 2009. 239-246.

Bicer, A., Boedeker, P., Capraro, R.M., & Capraro, M.M. (2015). The effects of STEM PBL on students' mathematical and scientific vocabulary knowledge. *International Journal of Contemporary Educational Research, 2*(2), 69-75

Blachowicz, C. L. Z., Fisher, P. J., Ogle, D., & Watts-Taffe, S. (2006). Vocabulary questions from the classroom. *Reading Research Quarterly, 41*, 524-539.

Blessman, J., & Myszczak, B. (2001). Mathematics vocabulary and its effect on student comprehension. Master of Arts Action Research Project. Retrieved from https://eric.ed.gov/?id=ED455112

Borgelt, D. (2008). Strategies and precise vocabulary knowledge: Exploring the relationships among mathematics vocabulary, problem solving, and confidence. *Summative Projects for MA Degree*. 23. Retrieved from http://digitalcommons.unl.edu/mathmidsummative/23

Bowie (2015). The relationship between middle school students' mathematical vocabulary and their achievements in mathematics: a mixed method study. *Dissertations, Theses and Capstone Project.* Paper 664. Retrieved from https://digitalcommons.kennesaw.edu/etd/664/

California Department of Education (2013). *Universal Access Chapter of the Mathematics Framework for California Public Schools: Kindergarten Through Grade Twelve*. Sacramento, CA: Author.

B, L.L. & Fleming, D. (2005). Literacy specialists in math class! Closing the achievement gap on state math assessments. *Voices from the Middle, 13*(1), 48-52.

Dunston, P. & Tyminski, A. (2013). What's the big deal about vocabulary? Mathematics Teaching in the Middle School. 19(1). 38-45.

Edgren, J. (2008). Producing more problem solving by emphasizing vocabulary. *Action Research Project*. 1. Retrieved from http://digitalcommons.unl.edu/mathmidactionresearch/1

Espin, C. A., & Foegen, A. (1996). Validity of general outcome measures for predicting secondary students' performance on content-area tasks. Exceptional Children, 62, 497-514.

Fatmanissa, N., & Kusnandi (2017). The linguistic challenges of mathematics word problems: A research and literature review. Malaysian Journal of Learning and Instruction, *Special Issue on Graduate Student Research on Education,* 73-92.

Fisher, D., & Frey, N. (2008). Word Wise and Content Rich, Grade 7-12: Five Essential Steps to Teaching Academic Vocabulary. Portsmouth, NH: Heinemann.

Fitzgerald, J., & Graves, M. (2005). Reading supports for all. *Educational Leadership, 62*(4), 68-71.

Georgius, K. (2008). Improving communication about mathematics through vocabulary and writing. *Summative Projects for MA Degree. 13*. http://digitalcommons.unl.edu/mathmidsummative/13

Gough, J. (2007). Conceptual complexity and apparent contradictions in mathematics language. *Australian Mathematics Teacher, 63*(2), 8-16.

Halliday, M. A. K. (1978). Language as social semiotic. London: Edward Arnold.

Hebert, M. & Powell, S. (2016). Examining fourth-grade mathematics writing: features of organization, mathematics vocabulary, and mathematical representations. *Read Writ. 29*. 1511-1537.

Ingram, J. & Andrews, N (2018). Use and meaning: What students are doing with specialized vocabulary. Proceedings of the IV ERME Topic Conference 'Classroom-based research on mathematics and language' (p. 81-88), Mar 2018, Dresde, Germany. hal-0185648181-88), Mar 2018, Dresde, Germany. hal-01856481

Kenney, M. J., Hancewicz, E., Heuer, L., Metsisto, D., & Tuttle, C. L. (2005). *Literacy strategies for improving mathematics instruction*. Alexandria, Virginia: ASCD.

Kotsopoulos, D. (2007). Mathematics discourse: It's like hearing a foreign language. *Mathematics Teacher, 101*(4): 301-305.

Lane, C., O'Meara, N., & Walsh, R. (2019). Pre-service mathematics teachers' use of mathematics register. *Issues in Educational Research, 29*(3), 790-806.

Lee, C. (2005). Language for learning mathematics-Assessments for learning in practice. Retrieved from http://www.researchgate.net/publication/50382417

Nagy, W. E. (1988). Teaching vocabulary to improve reading comprehension. Newark, DE: International Reading Association.

National Council of Teachers of Mathematics. (2000). *Principles and Standards for School Mathematics*. Reston, VA: Author.

Nel, C. (2012). Cracking the vocabulary code in mathematics in the foundation phase. *South African Journal of Childhood Education, 2*(2), 15-34.

Jackson, M. & Phillips, E. (1983). Vocabulary instruction in ratio and proportion for seventh graders. *Journal for Research in Mathematics Education, 14*(5), 337-343.

Meiers, M. & Trevitt, J. (2010). Language in the mathematics classroom. The Digest, NSWIT, 2010 (2). Retrieved from http://www.nswteachers.nsw.edu.au

Miller, D. L. (1993). Making the connection with language. *Arithmetic Teacher, 40*(6), 311-316.

Orton, A. (2004). *Learning mathematics: Issues, theory, and classroom practice (3rd ed)*. London: Continuum.

Pierce, M. E. & Fontaine, L. M. (2009). Developing vocabulary instruction in mathematics. The Reading Teacher, 63(3), 239-243.

Sepeng, P., & Madzorera, A. (2014). Sources of difficulty in comprehending and solving mathematical word problems. International Journal of Science Education, 6(2): 217-225.

Schleppegrell, M. (2007): The linguistic challenges of mathematics teaching and learning: A research review. Reading & writing quarterly, 23: 139-159.

Schoenberger, K. & Liming, L. (2001). Improving students' mathematical thinking skills through improved use of mathematics vocabulary and numerical operations. Dissertation and Thesis. Master of Arts Action Research. Retrieved from https://eric.ed.gov/?id=ED455120

Skinner, K., Pearce, D., & Barrera, E. (2016). Literacy difficulties of elementary students when solving mathematical word problems. Literacy Practice & Research. 29-36.

Smith, A. & Angotti, R. (2012). "Why are there so many words in math?": Planning for content-area vocabulary instruction. The National Council of Teachers of English. 20 (1), 43-51.

Solomon, A. (2009). The use of vocabulary in an Eighth grade mathematics classroom: Improving usage of mathematics vocabulary in oral and written communication. Action Research Project. 29. http://digitalcommons.unl.edu/mathmidactionresearch/29

Rubenstein, R. (2007). Focused strategies for middle-grades mathematics vocabulary development. *Mathematics Teaching in the Middle Schools, 13*(4). 200-207.

Winsor, M. (2007). Bridging the language barrier in mathematics. *Mathematics Teacher, 101*(5), 372-378.

Expectations and Experiences of Inbound Exchange Students: Insights for Improving the University's Image

Annie W.Y. Ng, Hong Kong University of Science and Technology, Hong Kong
Chung-Yee Lee, Hong Kong University of Science and Technology, Hong Kong

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract
The percentage of undergraduates on campus being international is a metric of university-specific key performance indicators in the domain of enhanced internationalization. More universities are recognizing this and trying to attract qualified inbound students. Recommendations from friends who attended the host institution and from staff in their home university are important factors for inbound students to consider when choosing a host university. Due to the significance of word-of-mouth's impact on inbound students' university preferences, this study investigated their expectations and experiences of inbound exchange. All 1191 inbound students at a university in Hong Kong were invited to complete a feedback survey near the end of their exchange studies. A total of 279 students (response rate 23.4%) completed the questionnaire. The results showed that 96.8% of the respondents indicated their exchange experience to be rewarding or very rewarding; 82.1% of the respondents rated their academic experience at the host university to be good or excellent; and 74.2% of the respondents enjoyed the non-academic aspects of campus life at the host university. The effectiveness of exchange experience in facilitating cultural awareness and understanding, adaptability to changes, being open-minded, and interpersonal and self-development was high (above four on a five-point scale). However, student services navigation and diversity of catering outlets to various ethnic groups were lower than the respondents' expectations. The findings were useful for education administrators to formulate strategies in enhancing inbound student satisfaction and further boosting up the university's image at the international level.

Keywords: Exchange-in students, Program evaluation, International exchange, Institutional research

iafor
The International Academic Forum
www.iafor.org

Introduction

To demonstrate an institution's internationalization development, the percentage of undergraduates on campus being international becomes a significant metric of university-wide performance measure in the domain of enhanced internationalization. More universities are recognizing this and trying to attract qualified inbound exchange students to study for a semester or an academic year. Previous research studies found that exchange abroad program brings numerous benefits towards inbound students themselves and host universities (Keogh & Russel-Roberts, 2009; Dörfer, 2015; Bell, 2016; Sarojna, 2017). The inbound exchange students provide tangible opportunities for cultural diversity on campus, expand capabilities for cross-cultural communication, and make international friends (Önen, 2017). They also add new perspectives to lecture discussions and classroom participation, in turn enriching curriculum learning experience and international flow of academic knowledge. Non-local students were previously found to have significantly higher score than local students in the cognitive, intrapersonal, and interpersonal scales of global perspective (Ng & Lee, 2019).

Recommendations from friends who attended the host institution and from staff in home university are vital factors for inbound students to consider when choosing a host university for exchange. Such word-of-mouth effects are becoming more important due to the increase in the advance of network technology and different forms of easily-accessible social media (Jalilvand & Samiei, 2012). Because of the significance of word-of-mouth's impact on inbound exchange students' university preferences, it is necessary to thoroughly investigate their expectations and experiences of exchange program study. However, relevant research studies on inbound exchange students' views on academic and non-academic aspects of host universities are limited, particularly for Western and Asian undergraduates who enrolled in exchange programs at universities in Chinese regional areas (for instance universities in Hong Kong).

University image is commonly considered to be the stakeholder perception founded on impressions, beliefs and/or attitudes towards the higher education institution through the interaction stakeholders have had with the institution (Durate, Alves, & Raposo, 2010; Wilkins & Huisman, 2014; Pérez & Torres, 2017). Students are the primary and the most important stakeholder of universities (Aghaz, Hashemi, & Sharifi, 2015; KüÇüksüleymanoğlu, 2015). To create a successful and desired university image, it is essential to collect and analyze student feedbacks regularly for a better understanding of their expectations and experiences that drive satisfaction or dissatisfaction, thereby determining appropriate improvement strategies (KüÇüksüleymanoğlu, 2015; Khalifa & Mahmoud, 2016).

Among various types of student stakeholders, inbound exchange students coming from different overseas universities are the stakeholders that offer perception of academic and non-academic aspects of campus as seen through the eyes of international counterparts. It is therefore interesting to know what the expectations and experiences of the inbound exchange students are, so that higher education practitioners could take appropriate action to sustain and improve the image of universities. The purpose of this study was to supplement existing literature by examining the expectations and experiences of inbound exchange at a university in

Hong Kong. The findings would be useful for administrators and management for reference to formulate evidence-based strategies in enhancing inbound student satisfaction and further boosting up the university's image at the international level.

Method

Participants

All 1191 inbound students at a university in Hong Kong were invited to complete an online feedback survey near the end of their exchange abroad program. A total of 279 students (129 males and 150 females) voluntarily completed the questionnaire, with response rate of 23.4%. The students came from different regional areas including Europe (n=116), North America (n=72), Australia and Oceania (n=4), and Asia (n=87). They were undergraduate students in year one (n=25), year two (n=52), year three (n=157), and year four or above (n=45) in their home university during the period of exchange. The duration of their exchange study was one to two months (n=58), five months (n=193), and 10 months (n=28); and were affiliated with engineering (n=132), business (n=78), science (n=57), and humanities and interdisciplinary (n=12) disciplines at the host university.

Questionnaire

The questionnaire containing close-ended questions about their overall rewarding experience, academic experience, non-academic aspects of campus life on exchange. The effectiveness of exchange experience in facilitating cultural awareness and understanding, adaptability to changes, being open-minded, and interpersonal and self-development were also asked. In addition, there were two open-ended questions about their valued most exchange experience and the things that the host university could do to better support exchange students. The questionnaire was administered online via Qualtrics platform.

Procedure

The feedback survey was administered to the inbound exchange students near the end of their exchange abroad program. A survey invitation email plus three email reminders were sent to the students. The duration of survey lasted for around one month. The students took no more than 15 minutes to complete the questionnaire.

Results and Discussion

For the 279 inbound exchange student respondents in this study, when asked to indicate their levels of satisfaction in terms of overall rewarding experience, academic experience, and non-academic aspects of campus life on exchange, the students generally gave high ratings. The mean overall rewarding rating on exchange was 4.49±SD 0.5 (1 = very unrewarding, 5 = very rewarding); 96.8% of the students indicated their exchange experience to be rewarding or very rewarding. The overall mean rating on academic experience at the host university was 4.14±SD 0.82 (1 = very poor; 5 = excellent); 82.1% of the students rated their academic experience to be good or excellent. Regarding the non-academic aspects of campus life at the host university, the average enjoyable rating was 4.03±SD 0.93 (1 = not at all; 5 = a lot).

74.2% of the students reported that they enjoyed the non-academic aspects of the host university quite a lot or a lot.

A number of positive open-ended comments (n=274) were also received from the inbound exchange students about their academic learning and non-academic aspects of campus life on exchange. The academic aspects that the inbound exchange students enjoyed most for example were: more varieties of courses than their home university; being able to take courses that were not offered in their home universities; learning professional skills and knowledge that they lacked of in their home universities; stepping outside of their comfort zone to recognize practices and attitudes in the host country; well-arranged courses and interesting classes; easy in transfer credits; and opportunity in learning and speaking Chinese including Cantonese and Putonghua. The non-academic aspects of campus life that the inbound exchange students enjoyed included: beautiful campus; good campus culture; advanced library services; guarantee of on-campus accommodation during exchange; campus location away from city center; making new friends from different parts of the world; and good experience in extra-curricular activities (e.g. sport climbing team, hackathon, and international Christian community).

Furthermore, the effectiveness of exchange experience in facilitating their cultural awareness and understanding, adaptability to changes, open-mindedness to new experiences, and maturity and independence, and interpersonal skills enhancement was found to be high (mean rating above four on the five-point scale) (Table 1). The development on cultural awareness and understanding, ability of adaptability to changes, being open-minded to new experiences, mature and independent via exchange experience were rated effective or very effective by 80% or above of the students. Seventy-eight percent of the students indicated that the exchange experience was effective or very effective for interpersonal skills enhancement.

Please rate your exchange experience in terms of its effectiveness in helping you to: (5 = Very effective; 1 = Not effective at all)	**Mean**	**SD**
Become more aware of cultural differences of people I met	4.30	0.83
Better understand the people and culture of my host country	4.10	0.87
Be more able to adapt to changes	4.26	0.89
Be more open-minded to new experiences	4.40	0.83
Enhance my interpersonal skills	4.10	0.92
Become more mature and independent	4.25	0.90

Table 1: Rating on inbound exchange experience in terms of its effectiveness in six aspects.

Generally, the feedback survey results showed that the inbound exchange experience was perceived positive. However, a number of suggestions (n=103) from the inbound exchange students on what the host university could do to better support their exchange were received, bringing new initiatives about what universities should be improved. The first major area of suggestion was about student services navigation. The inbound exchange students were not familiar with where to access and/or how to navigate smoothly in the online platforms such as learning management system, portal, course registration system, and social media groups of the host university. For course registration system, the inbound exchange students recommended for an easier registration system and process.

In addition, the inbound exchange students were not certain which campus facilities were allowed for them to visit and use in particular for taking rest and study. The students mentioned that the means of campus wayfinding was not adequate enough. There should be a better wayfinding signage system on campus to indicate where to go (e.g. how to get to student halls) and an informative and updated campus wayfinding mobile app to help get around campus indoor (e.g. location of available study rooms) quickly.

The second area of suggestion was about on-campus catering choices. The inbound exchange students suggested more diversity of catering outlets to suit for various ethnic groups and taste habits, as the students were from different regional areas. They suggested having European dishes and campus bar for students hanging out after classes. They also asked for different vegetarian food choices for selection in campus canteens.

University image refers to the impressions, beliefs and/or attitudes of student stakeholders towards the higher education institution based on their interactions with the institution (Durate et al., 2010; Wilkins & Huisman, 2014; Pérez & Torres, 2017). Thus, the expectations and experiences of the inbound exchange students here offered significant insights for improving the image of university. To further boost up the university image at the international level for attracting qualified inbound exchange students, the university administrators and management should consider and digest all of these student comments and suggestions and take the necessary measures for improvement. For instance, the administrative and support staff for the exchange abroad program might compile a quick guide about student service systems and campus facilities that are available for inbound exchange students to visit and use. For catering choices, in short term, a list of restaurants and catering outlets around campus (e.g. the nearest shopping malls) might also be prepared for inbound exchange students to taste the home country's foods when they want. In addition, the university might conduct a comprehensive review and evaluation of the campus facilities and services, in particular focusing on the areas raised by inbound exchange students. For the student service systems like course enrollment, the university can examine the corresponding service systems in exchange students' home institutions, learn the good practices of student service systems from international counterpart universities, and then redesign and upgrade the existing systems in order to satisfy with the needs of student stakeholders.

Conclusion

This study investigated expectations and experiences of inbound exchange students coming from different regional areas and overseas universities who had completed an exchange abroad program at a university in Hong Kong. Generally, the inbound exchange students obtained good experience in both academic and non-academic aspects of the host university. They also perceived that such exchange experience was effective in facilitating their cultural awareness and understanding, adaptability to changes, being open-minded, mature and independent, and interpersonal skills enhancement. Some suggestions on what the university could do better to support their inbound exchange were identified. Two major areas of suggestions from the inbound exchange students were: student service systems and diversity of catering choices for various ethnic groups. Fuller understanding of these suggested aspects

provides insights into the dynamics of campus development that enable effective support for the diverse needs of students, thereby increasing university's attractive competitiveness. Overall, these experiences and expectations as seen through the eyes of inbound exchange students from international counterpart universities were of important concerns for the administrators and those responsible for university planning to continuously enhance university image.

References

Aghaz, A., Hashemi, A., & Sharifi Atashgah, M. S. (2015). Factors contributing to university image: the postgraduate students' points of view. Journal of Marketing for Higher Education, 25, 104-126.

Bell, R. (2016). Concerns and expectations of students participating in study abroad programs: blogging to reveal the dynamic student voice. Journal of Research in International Education, 15, 196-207.

Dörfer, C. (2015). University students' expectations and perceptions of study abroad: case studies in administrative sciences. American Journal of Educational Research, 3, 1036-1039.

Durate, P.O., Alves, H.B., & Raposo, M.B. (2010). Understanding university image: a structural equation model approach. International Review on Public and Nonprofit Marketing, 7, 21-36.

Jalilvand, M. R., & Samiei, N. (2012). The effect of electronic word of mouth on brand image and purchase intention: an empirical study in the automobile industry in Iran. Marketing Intelligence & Planning, 30, 460–476.

Keogh, J., & Russel-Roberts, E. (2009). Exchange programs and student mobility: meeting student's expectations or an expensive holiday? Nurse Education Today, 20, 108-116.

Khalifa, B., & Mahmoud, A. B. (2016). What forms university image? An integrated model from Syria. Business: Theory and Practice, 17, 46-55.

KüÇüksüleymanoğlu, R. (2015). Organizational image perceptions of higher education students. Educational Research and Reviews, 10, 2667-2673.

Ng. A.W.Y., & Lee, C.Y. (2019). The global perspective of undergraduate freshmen in Hong Kong. Proceedings of the 2019 International Conference on Education and Learning (pp. 42-53). Global Academic-Industrial Cooperation Society.

Önen, S. (2017). An investigation into the experiences of Erasmus students. Hasan Ali Yücel Eğitim Fakültesi Dergisi, 14, 339-367.

Pérez, J. P., & Torres, E. M. (2017). Evaluation of the organizational image of a university in a higher education institution. Contaduría y Administración, 62, 123-140.

Sarojna, K. (2017). The experiences and attitude toward the exchange programs in Korea among Burapha University exchange students. Annual Conference of Communication, Media and Culture, 1, 30-38.

Wilkins, S., & Huisman, J. (2014). Factors affecting university image formation among prospective higher education students: the case of international branch campuses. Studies in Higher Education, 40, 1256-1272.

Contact email: anniewyng@ust.hk

Science Program in Selected Public Elementary Schools: A Formative Evaluation

Eileen C. Bernardo, Isabela State University, Philippines

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract
The implementation of the K to 12 curriculum in the Philippines started in 2012. While the program began with Grade 1 and Grade 7 students, the succeeding levels were introduced as these students get promoted to the next grade levels in the following school year. During the school year 2011-12, Republic Act 10157 or the Kindergarten Education Act was implemented. The Act institutionalized the inclusion of kindergarten education in the basic education system. Republic Act 10533, also known as the Enhanced Basic Education Act of 2013, enabled the implementation of the K to 12. This study aimed at conducting formative evaluation of the implementation of K to 12 Science Program of public elementary schools in Cabagan District, Cabagan, Isabela, Philippines for the first semester of school year, 2019-2020. The respondents of the study were teachers and administrators from twelve (12) randomly selected public elementary schools in Cabagan district. The study used quantitative and qualitative designs of research. Survey questionnaire and interview guide were used to gather data. This paper presents the teachers' competencies and pedagogical practices in teaching science. It also presents common problems encountered by teachers and administrators in the implementation of the program, and the degree of seriousness of these problems.

Keywords: K to 12 curriculum, Science program, formative evaluation, teachers' competencies, pedagogical approaches

iafor
The International Academic Forum
www.iafor.org

Introduction

Basic Education in the Philippines underwent radical change. In this current program on basic education, students spend twelve years, instead of the usual ten years. The implementation of the K to 12 program started in June 2012. First graders go through twelve years of basic education instead of ten years while high school freshmen spend six years rather than the usual four.

This two year addition is supposed to bring our students at par with international standards and synchronize the Philippine educational system to world standards. It will also stream students into the rational vocational college bound tracks that fill employment demands (Hall, 2012 in Bernardo et al., 2018). The program will prepare graduates for higher education and master the basics. Thus, it will prepare them better for work. Other implications of the K to 12 Program include the following: graduates will be better prepared for higher education; graduates will have a better mastery of basics, and remedial courses will no longer be necessary, graduates of the K to 12 Program will be better prepared for work, thus they can go directly to work. In view of the implementation of the K to 12 Program, a development of a National Qualifications Framework is deemed necessary (Licuanan, 2012). With the curricular changes for these two additional years, higher education institutions (HEIs) worry about the impact of all these will have.

When the first batch of high school students under the K to 12 curriculum graduated in March 2018, they are not only functionally literate but are also equipped with "21st century core skills" as termed by the Department of Education (DepEd) that is, digital age literacy, inventive thinking, effective communication and high productivity. These core skills, according to DepEd, would make them ready for both career (either employment or entrepreneurship) and for higher education (either in vocational-technical institutes or in colleges and universities) (Chua, 2012). Towards this goal is the quality and effective delivery of instruction.

The implementation of the program includes the development of a revised general education curriculum and shortening of a college curriculum. Teacher Education Institutions (TEIs) adjusted its pre-service programs to align with the needs of the education sector.

Administrators of HEIs were challenged on how to address the impact of this program to enrolment during its transition period in SY 2016-17 and SY 2017-18. But of high importance is the evaluation and re-engineering of the higher education curricular program to address the changes.

Evaluation of a new program is an essential activity so as to draw feedback for its improvement.

This study aimed at conducting formative evaluation of the implementation of K to 12 Science Program of public elementary schools in Cabagan District, Cabagan, Isabela, Philippines for the first semester of school year, 2019-2020.

Specifically, the research aimed to:

1. Determine the teachers' competencies and pedagogical practices in teaching science.
2. Determine the common problems encountered by teachers and administrators in the implementation of the program, and the degree of seriousness of these problems.

Methodology

The study used quantitative and qualitative designs of research. Survey questionnaire and interview guide were used to gather data. The study focused in selected public elementary schools in Cabagan, Isabela, Philippines. Stratified random sampling of schools was done. The respondents of the study were teachers and administrators from twelve (12) randomly selected public elementary schools in Cabagan district.

1. Sources of Data

This study was conducted in twelve public elementary schools in the district of Cabagan in Isabela, Philippines. Schools were randomly selected. Science teachers from the randomly selected schools were part of the respondents. All science teachers from the 12 elementary schools were included in the study. There were 59 respondents in the study.

2. Research Instruments

The survey questionnaire developed by Daguio (2018) for elementary teachers was used in this study. The survey questionnaire for teachers included statements on the extent of implementation of the Science program and on the problems and difficulties encountered by the teachers in the implementation of the program.

An interview guide was used during the interview to validate data from the questionnaire answered by the respondents.

3. Data Gathering Procedure

The data of the study were gathered by means of a survey and interview of stakeholders.

4. Data Analysis

Descriptive statistics were used for the quantitative analysis. Mean was used to measure the extent of implementation and in describing the degree of seriousness of problems encountered. The following intervals were used in interpreting the computed weighted mean for the extent of implementation of Science program:

Table 1. *Arbitratry scale used to describe the extent of implementation of science program*

Weight	Scale/Range	Description	Code
5	4.50 – 5.0	Very Great Extent	VGE
4	3.50 – 4.49	Great Extent	GE
3	2.50 – 3.49	Moderate Extent	ME
2	1.50 – 2:49	Little Extent	LE
1	1.00 – 1.49	Very Little Extent	VLE

To describe the level of seriousness of problems, the following intervals were used:

Table 2. *Arbitrary Scale on Describing the Degree of Seriousnes of Problems Encountered*

Weight	Scale/Range	Description	Code
5	4.50 – 5.0	Very Serious	VS
4	3.50 – 4.49	Serious	S
3	2.50 – 3.49	Moderately Serious	MS
2	1.50 – 2:49	Slightly Serious	SS
1	1.00 – 1.49	Not a problem	NP

Results and Discussion

Teachers' Competencies and Pedagogical Practices in Teaching Science

Competencies and the pedagogical practices which are implemented by the teachers are shown in Table 3.

Based on Table 3, it appears that the pedagogical practices listed above are implemented to a great extent (GE). The pedagogical practices which are implemented by most of the teacher respondents include the following: allowing students to speak freely or create a class environment which is comfortable to students, communicating at the level of the pupils/students, and providing clear explanations about the topic. Other practices are making connections to what students already know and the use of the 5E Learning Model.

Table 3. *Competencies and Pedagogical Practices in TeachingScience*

IMPLEMENTATION	**RESPONDENTS**				**OVER-ALL MEAN RATING**	**DESCRIPTION**
	TEACHERS					
	G3	G4	G5	G6		
1. Makes connections to what students already know	4.24	4.37	4.267	4.36	4.31	GE
2. Provides clear explanations about the topic	4.35	4.42	4.47	4.21	4.36	GE
3. Use pupils' schema to:						
3.1. deepen knowledge	4.24	4.37	4.07	3.79	4.12	GE
3.2. encourage participation	4.24	4.42	4.07	4.21	4.24	GE
3.3. encourage understanding	4.24	4.42	4.27	4.29	4.31	GE
4. Patterns instruction in the 5E Learning Cycle Model						
4.1. Engagement	4.24	4.32	3.93	4.36	4.21	GE
4.2. Exploration	4.12	4.11	4.00	4.29	4.13	GE

4.3. Explanation	4.06	4.32	4.13	4.36	4.22	GE
4.4. Elaboration	4.12	4.26	4.00	4.429	4.20	GE
4.5. Evaluation	4.18	4.26	4.13	4.36	4.23	GE
5. Tackles competencies with the intended breadth and depth as articulated in the grade level standards	4.06	3.95	3.87	3.57	3.86	GE
6. Uses various teaching approaches in Science :						
6.1. Multi-Disciplinary Approach	3.53	3.63	3.87	4.00	3.76	GE
6.2. Inquiry-Based Approach	3.94	4.05	4.00	3.71	3.93	GE
6.3. Problem-Based Approach	3.71	3.95	3.80	3.93	3.85	GE
6.4. Contextual Learning	3.94	4.05	3.93	3.93	3.96	GE
6.5. Constructivist Approach	3.82	3.90	3.67	3.79	3.80	GE
6.6. Guided Inquiry-Based Approach	4.00	3.90	4.00	4.00	3.98	GE
7. Employs contextualization in teaching the subject	3.82	4.11	3.73	3.79	3.86	GE
8. Uses hands-on learning activities	3.94	4.26	3.80	3.93	3.98	GE
9. Uses evidence in constructing explanation	4.06	4.11	4.13	4.21	4.13	GE
10. Provides concrete, real life and practical examples	4.24	4.26	4.07	4.29	4.22	GE
11. Develops instructional materials incorporating coherent learning activities and experiences	4.12	4.21	4.20	4.36	4.22	GE
12. Allows students to speak freely or create a class environment which is comfortable to students	4.35	4.63	4.33	4.21	4.38	GE
13. Communicates at the level of the pupils/students	4.35	4.47	4.40	4.29	4.38	

14. Guides students by asking questions that will lead them to develop their own ideas on the topic	4.47	4.37	3.93	4.36	4.28	GE
15. Provides varied activities to develop multiple intelligences	4.12	4.37	3.87	4.07	4.11	GE
16. Integrates Science lessons in other subjects	4.18	4.32	4.07	4.00	4.14	GE
GRAND MEAN RATING					4.06	GE

Common problems encountered in the implementation of the Science program

The common problems encountered by teachers in the implementation of the Science program and the degree of seriousness of these problems are discussed below in terms of the following areas: Teacher Preparation and Preparedness, Learner Preparation/Readiness, Teaching Strategies and Techniques and Learning Resources and Facilities.

Table 4. *Problems encountered in terms of Teacher Preparation and Preparedness*

PROBLEMS	**RESPONDENTS** TEACHERS				**OVER-ALL MEAN RATING**	**RANK**	**DESCRIPTION**
	G3	G4	G5	G6			
1. Inadequate seminars/ trainings related to K+12 Science Program.	3.24	3.63	3.20	3.36	3.36	1	S
2. Insufficient readings and study materials in Science	3.00	3.16	3.67	3.21	3.26	.2	MS
3. Lack of knowledge, skills, attitudes, values pertinent to K + 12	2.65	2.74	2.60	2.79	2.70	3	MS
4. Poor awareness on the goals, purposes, and objectives of K+12 Science Program	2.59	2.58	2.53	2.29	2.50	7	MS
5. Lack of confidence to appropriately	2.47	2.58	2.73	2.21	2.50	7	MS

teach Science							
6. Insufficient knowhow on how to address the needs of learners	2.53	2.58	3.00	2.36	2.62	4	MS
7. Lacks mastery on teaching content and objectives	2.35	2.74	2.40	2.50	2.50	7	MS
8. Inadequate knowledge on varied teaching strategies and techniques	2.35	2.68	2.73	2.14	2.48	9	SS
9. Insufficient knowledge on educational technology	2.59	2.74	2.47	2.50	2.56	5	MS
10. Inadequate know-how on the use of varied assessment tools.	2.41	2.47	2.33	2.50	2.43	10	SS
GRAND MEAN RATING					2.69		MS

Table 4 shows that among the items under the area of Teacher Readiness and Preparedness, problem on Inadequate K to 12 Seminars/Training ranked first with mean rating of 3.36. This suggests that teachers and administrators met serious problems on the inadequacy of teacher trainings on K to 12.

A grand mean rating of 2.69 means that the problems on Teacher Readiness and Preparedness are moderately serious.

Table 5. *Problems encountered in terms of Learner Preparation and Preparedness*

PROBLEMS	**RESPONDENTS TEACHERS**				**OVER-ALL MEAN RATING**	**RANK**	**DESCRIPTION**
	G3	G4	G5	G6			
1. Poor awareness on the goals, purposes and objectives of the K+12 Science curriculum	2.59	2.84	2.67	2.29	2.60	5.5	MS
2. Lacks orientation, symposium to broaden the knowledge in K+12	2.94	3.11	2.73	2.93	2.93	2	MS

3. Lacks knowledge on the rationale why the enhanced basic education curriculum is implemented	2.76	3.00	2.67	2.64	2.77	4	MS
4. Lack of understanding on concepts and class activities	2.59	2.68	2.47	2.36	2.53	8	MS
5. Relating personal experiences for the long retention of learning are not observed	2.59	2.68	2.67	2.43	2.60	5.5	MS
6. Various materials needed for instruction are meager	2.76	3.16	3.20	3.21	3.08	1	MS
7. Shows passivity in class discussions and making projects	2.88	2.94	2.80	2.79	2.85	3	MS
8. Performance assessment tools are not clearly explained	2.53	2.74	2.73	2.29	2.57	7	MS
9. Lack of knowledge and poor understanding on underlying concepts and principles that can be applied to problems/ situations in new contexts	2.35	2.68	2.60	2.14	2.44	9	SS
10. No orientation about the new ways on how the lessons are presented	2.47	2.58	2.20	2.43	2.42	10	SS
GRAND MEAN RATING					2.68		MS

The problem on meager materials needed for instruction is ranked first and is described as moderately serious. Problems encountered in terms of learner preparation and preparedness have grand mean of 2.68 and are considered moderately serious problems.

Table 6. *Problems encountered in terms of Teaching Strategies and Techniques*

PROBLEMS	RESPONDENTS				OVER-ALL MEAN RATING	RANK	DESCRIPTION
	TEACHERS						
	Gr 3	Gr 4	Gr 5	Gr 6			
1. Team teaching to bring about effective teaching is not done	2.59	2.79	2.67	3.29	2.84	5	MS
2. Various assessment tools to rate students' performance are not used	2.59	2.68	2.67	2.57	2.63	9	MS
3. Lack of appropriate technology-assisted instruction	2.71	3.05	3.00	3.14	2.98	3	MS
4. Insufficiency of varied teaching strategies and techniques	2.47	2.79	2.67	2.93	2.72	7	MS
5. Limited incorporation of students practical experiences with the lessons	2.89	3.05	2.93	3.29	3.04	2	MS
6. Resources of the community are meager for student exposure	2.88	3.11	3.33	3.29	3.15	1	MS
7. Inadequate knowledge in contextualization (localization and indigenization of instructional materials)	2.71	2.74	2.60	3.00	2.76	6	MS
8. Groupings in accomplishing projects are not employed	2.24	2.47	2.80	3.07	2.65	8	MS
9. Difficulty improvising instructional materials in Science	2.47	2.84	2.80	3.29	2.85	4	MS
10. Monotonous use of teaching	2.53	2.58	2.40	2.79	2.56	10	MS

strategy and approaches		
GRAND MEAN RATING	2.82	MS

The problems encountered by teachers in terms of Teaching Strategies and Techniques have a grand mean rating of 2.82 which means these are moderately serious problems. Meager resources of the community for student exposure is ranked first (over-all mean rating = 3.15) and limited incorporation of students' practical experiences with the lessons ranked second (over-all mean rating = 2.00).

Table 7. *Problems encountered in terms of Learning Resources and Facilities*

PROBLEMS	**RESPONDENTS**				**OVER-ALL MEAN RATING**	**RANK**	**DESCRIPTION**
	TEACHERS						
	G3	G4	G5	G6			
1. Insufficient computers in school to be used in teaching	3.47	3.68	3.40	3.79	3.59	3	S
2. No available projector and ICT related materials needed in teaching-learning process.	3.24	3.37	3.20	4.00	3.45	6	MS
3. No available learner's materials in the subjects	2.65	2.68	3.00	3.29	2.91	9	MS
4. Lack of textbooks needed in the lesson	2.41	2.84	2.93	3.50	2.92	8	MS
5. Inadequate community resources as an aid of student learning	3.12	3.37	3.467	3.86	3.45	6	MS
6. Few reference materials are found in the school library	2.94	3.63	3.07	4.14	3.45	6	MS
7. No available laboratory rooms and laboratory equipment needed in	3.65	3.79	4.067	4.29	3.95	1	S

laboratory activities or experiments							
8. Limited numbers of books and references are found in the community	3.24	3.42	3.20	4.00	3.47	4	MS
9. Few available materials for projects and research work	3.35	3.47	3.60	4.36	3.70	2	S
10. No available Teacher's guide in the subject	2.35	2.63	2.80	2.79	2.64	10	MS
GRAND MEAN RATING					3.35		MS

Problems encountered by teachers in terms of Learning Resources and Facilities have a grand mean of 3.35 which is described as moderately serious. Among the problems on Learning Resources and Facilities, no available laboratory rooms and laboratory equipment needed in laboratory activities or experiments is ranked first. The over-all mean rating = 3.95 which is considered serious. Few available materials for projects and research work is ranked 2 with an over-all mean rating of 3.70 which is another serious problem. Insufficient computers in school to be used in teaching is ranked third with an over-all mean rating of 3.59. The other seven problems are considered moderately serious problems.

Table 8. *Problems encountered in terms of Curriculum Enhancement*

PROBLEMS	**RESPONDENTS**				**OVER-ALL MEAN RATING**	**RANK**	**DESCRIPTION**
	TEACHERS						
	G3	G4	G5	G6			
1. Mandated by authorities with predetermined content	2.94	2.89	3.07	2.57	2.87	1	MS
2. No participation of teachers concerned in the formulation of the curriculum	2.53	2.74	2.53	2.79	2.65	7	MS
3. Integration of the resources and needs of the community is not evident	2.76	2.89	2.73	3.07	2.86	2	MS

4. Integration of the needs and interest of the learners is not been considered	2.59	2.79	2.40	2.43	2.55	9	MS
5. Revision as needed to make content relevant has not given attention	2.71	2.74	2.73	2.71	2.72	4	MS
6. Project-based learning activities have not carefully planned	2.76	2.84	2.60	2.50	2.68	5.5	MS
7. Very few learning situations that develop critical thinking and problem solving skills	2.65	2.84	2.73	2.79	2.75	3	MS
8. Content is not simplified to the level of student	2.59	2.79	2.67	2.43	2.62	8	SS
9. Teacher lacks know ledge on how to enhance subject matter	2.29	2.47	2.27	2.07	2.28	10	SS
10. Activities that develop student communication skills are not enough	2.59	2.68	2.80	2.64	2.68	5.5	MS
GRAND MEAN RATING					2.67		MS

Problems encountered by the teachers in terms of Curriculum Enhancement have a grand mean rating of 2.67 which is described as moderately serious. Mandated by authorities with predetermined content is ranked 1 (Over all mean rating = 2.87), Integration of the resources and needs of the community is not evident is ranked 2 (Over-all mean rating = 2.86) and Very few learning situations that develop critical thinking and problem solving skills is rank no. 3.

The common problems encountered by teachers in the implementation of the Science program in terms of the following areas: Teacher Preparation and Preparedness, Learner Preparation/Readiness, Teaching Strategies and Techniques and Learning Resources and Facilities are moderately serious problems.

Conclusions and Recommendations

The K to 12 curriculum started in 2012 to cope with globalization. It is one of the biggest educational reforms in the Philippine educational system. As a new program, evaluation is vital to strengthen or improve the program and to monitor the progress made in its implementation. This is important in decision-making.

The implementation of Science program in the district of Cabagan, Isabela in terms of curriculum guide, competencies and pedagogical practices, desired outcomes, medium of instruction, time allottment, learning resources, and assessment, are implemented by the teachers to a great extent.

However, there are still serious problems that should be resolved immediately so that the objectives of program are attained. Teachers still lack trainings related to the K to 12 science program and learning materials are still insufficient to satisfy the demands of the program.

While the Department of Education (DepEd) of the Philippines, the administrators and the teachers and have made some major moves, more are still to be done so that the program be successfully implemented.

There is a dire need to look into as soon as possible on problems that teachers are facing specifically on the lack of trainings and learning materials and resources. These are the defining factors towards the successful implementation of the program.

It is therefore recommended that the Department of Education shall provide more seminars/training for teachers so they will be properly equipped with adequate knowledge and skills to effectively implement the curriculum. The Department should provide sufficient learning materials in Science to cater to the needs of the learners. DepEd shall conduct additional trainings and seminars on contextualization and localization to assist teachers in developing materials and strategies to enhance learning. Parallel research studies should be conducted to determine the extent of the implementation of Basic Education Program in other courses such as mathematics, english, social studies and in the secondary level. More intensive orientation should be done to increase the knowledge and understanding of students on the underlying concepts and principles that can be applied to problems/situations in new the contexts. Teachers and administrators shall strengthen community linkages and seek more educational partners that can be of help to minimize the effects of inadequacy of budget. Results of this study may be disseminated to the respondent schools for teachers and administrators to be informed on the extent of their implementation of the program and the problems encountered. By knowing the results, problems may be given immediate solutions.

References

Corpuz, B. B. (2011).The Spiral Progression Approach in the K to 12 Curriculum Criminal Justice Evaluation Framework (CJEF): Evaluating process and implementation. Criminal Justice Research Department of Premier and Cabinet.

Hall, R. A. (2012). What will K-12 mean for universities in the Philippines? http://www.guardian.co.uk/higher-education-network/blog/2012/m1y/09/k12-education-universities-philippines.

Licuanan, P. (2012). Implications of the Philippine K to 12 Education Program for Higher Education. K to 12 Pre-Summit Conference. (Posted by Ia Adam-Lim on March 15, 2012 in Special Education Philippines Blog Site).

Stufflebeam, D. L. (2000). The CIPP model for evaluation. In T. Kellaghan and D. L. Stufflebeam (Eds). International Handbook of Educational Evaluation, Part 1 (pp. 31-62). Dordrecht: Kluwer Academic Publishers.

Preferred Learning and Teaching Styles in Filipino-8: Basis for Developing Learning Module

Ray Mon F. Pereyra, Eusebio High School, Philippines

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract

This study aimed to determine the preferred learning styles in Filipino of Grade 8 students and teachers of Eusebio High School, Division of Pasig City during first quarter of school year 2017-2018. More specifically, it sought answers to the following questions: 1. What are the preferred learning styles of the student respondents in Filipino as perceived by the students themselves? 2.What are the teaching styles of the teachers in their Filipino subjects as perceived by the teachers themselves? 3. Is there a significant difference between the preferred learning styles of the students and the teachers' teaching styles in Filipino 8 in terms of the following categories? a.Verbal/Linguistic Style, b. Logical/Mathematical Style, c. Visual/Spatial Style, d. Bodily Kinesthetic Style, e. Naturalist Style, f. Musical/Rhythmic Style, g. Interpersonal Style, h. Intrapersonal Style, i. Existential Style. 4. What learning modules could be developed based on the results of the study? The descriptive method of research was used with the survey questionnaire as the data gathering instrument. The respondents were composed of five Filipino teachers and 365 Grade 8 students from Eusebio High School, Division of Pasig City. The hypotheses that was pursued is, "There is no significant difference between the students learning styles and the teachers' teaching styles in Filipino. The statistical tools used to treat the data were the percentage, ranking, weighted mean and t-test. The salient findings of the study are the following:1. The students' learning styles in Filipino are the following: rank 1- Bodily Kinesthetic; rank 2 – Interpersonal; rank 3 – Musical/Rhythmic; rank 4 Logical/Mathematical; rank 5 – Verbal/Linguistic; rank 6 – Naturalist; rank 7.5 – Visual/Spatial and Intrapersonal and rank 9; Existentialist 2. There was no significant difference between the preferred learning styles and teaching styles of the students and teachers as perceived by themselves.3. A module with varied learning activities developed based on the preferred learning styles of the students.

iafor
The International Academic Forum
www.iafor.org

Introduction of the Research

The teachers' goal in their teaching is to have their students learning, so how the teachers will achieve their goal? How, the teacher will follow the trend of the speed changing world most specially in the teaching profession? How will the educators will adjust to student's preferred learning style? According to some studies and research it will help a lot if the teachers will use different kinds of strategies and styles in their teaching that matches the learning styles of the learners resulting for better and easy way of learning.

Many people recognize that each person prefers different learning styles and techniques. Learning styles group common ways that people learn. Everyone has a mix of learning styles. Some people may find that they have a dominant style of learning, with far less use of the other styles. Others may find that they use different styles in different circumstances. People can develop ability in less dominant styles, as well as further develop styles that they already use well. By recognizing and understanding the learning styles of students, the teachers can use techniques better suited to their students.

A learning style is a student's consistent way of responding to and using stimuli in the context of learning. Learning styles are not really concerned with *what* learners learn, but rather *how* they prefer to learn. Learning styles are points along a scale that help the teachers to discover the different forms of mental representations; however, they are not good characterizations of what people are or are not like. The teachers should not divide the population into a set of categories (i.e., visual and auditory learners). What these various instruments attempt to do is to allocate a person on some point on a continuum (similar to measuring height or weight). In other words, they should do not pigeonhole people as they are all capable of learning under almost any style, no matter what their preference is.

The following are the reasons for adjusting one's preferred teaching style to different teaching methods as cited by Fiedler, to suit to the learners needs. An effective teacher should be creative enough to implement teaching methods that meet the styles and needs of the students. To challenge learners to use both brain domains. Creative teaching methods stimulate learning based on the learners' learning style. To check one's predictability. Knowing one's preferred teaching styles can help avoid being predictable. To challenge oneself to be versatile. To learn other styles for variations of teaching and learning strategies. To create love for learning. Once the love for learning is established in every learner, any method will work.

Teachers, it is generally espoused the common belief that students learn and develop through exposure – that the content is all – important. Teachers have been accustomed to a traditional learning process where one who knows (the teacher) presents the ideas to one who does not (the student). Many people prospered under the traditional lecture system, where the focus was on the coverage of the material through teaching by telling. This approach may work for others but it may not work for the majority of today's students. Students are changing dramatically, and teachers must respond to those changes. What happens, for example, when the learning is not on the same "wavelength" as the teacher – when the connections simply aren't there? If one

believes that what one teaches has real value, then one can benefit from understanding the effect of how it is being presented and to whom.

This concern motivated the researcher to discover the preferred learning styles of a high school second year students in Eusebio High School, that he can use or a basis for developing a teaching activities in teaching Filipino.

The researcher believes that each person prefers different learning styles and techniques. Everyone has a mix of learning styles. Some people may find that they have a dominant style of learning, with far less use of the other styles. Others may find that they use different styles in different circumstances. There is no right mix. Nor are your styles fixed. You can develop ability in less dominant styles, as well as further develop styles that you already use well.

The researcher want to study on the preferred learning style of the Grade VIII students to be able to develop a teaching activity specially in teaching Filipino, a teaching activities that suites to the preferred learning styles of the high school students today. A teaching activities that will help the teacher and the students for better and easiest way of learning. A teaching activity that based on the result of the study that fits and appropriate the modern way of learning of our youth today. An activity that the students will surely enjoy and loved to do, so we can say that learning is easy to achieve.

Being a teacher for more than ten (10) years, the researcher observed that it is very important to match one's teaching style to the learning styles of students to get them to perform best inside the classroom. The reason why students do not excel, or at least perform is that because most teachers fail to recognize and analyze the students' learning style preferences.

By knowing the various learning styles of the students, the teachers may seek to find various methods and techniques so that performance inside the classroom can be maximized, hence, students' academic performance could be at a greater extent and also to have a basis in developing a module or a teaching activities in deepening learning in Filipino.

Literature Review

To deepen the knowledge and insights on the present study, a number of books, periodicals, and articles from the internet were perused to gather pertinent information which were used by the researcher in conceptualizing this study. These are presented in the forthcoming discussion:

Individual differences play an important role in academic achievement of the students. There have been many attempts to address the problem of low academic achievement and some factors have been identified in explaining academic achievement. Among the numerous variables researched, demographic status, intelligence, behavioral characteristics, and psychological factors, namely, attitudes, self-esteem, self-efficacy and self-concept have been used to explain academic achievement. Besides differences in ability, which are not easy to control, students have specific learning styles that may influence their academic achievement. Being

aware of learning styles and their roles in academic achievement is of a great importance for educational psychologists, teachers and researchers.

Gardner's theory initially listed seven intelligences which work together: linguistic, logical-mathematical, musical, bodily-kinesthetic, spatial, interpersonal and intrapersonal; he later added an eight, naturalist intelligence and says there may be a few more. The theory became highly popular with K-12 educators around the world seeking ways to reach students who did not respond to traditional approaches, but over time, "multiple intelligences" somehow became synonymous with the concept of "learning styles." In this important post, Gardner explains why the former is not the latter.

Gardner's theory, an intelligence encompasses the ability to create and solve problems, create products or provide services that are valued within a culture or society. The nine intelligences, as he further explained have the following as keypoints: 1) All human beings possess all nine intelligences in varying degrees; 2) Each individual has a different intelligence profiles; 3) Education can be improved by assessment of students' intelligence profiles and designing activities accordingly; and 4) Each intelligence occupies a different area of the brain. These nine intelligences may operate in consort or independently from one another.

Gardner described each of the categories of the multiple intelligences, as follows:
Verbal/Linguistic. This intelligence refers to an individual's ability to understand and manipulate words and languages. Everyone is thought to possess this intelligence at some level. This includes reading, writing, speaking, and other forms of verbal and written communication. People with strong rhetorical and oratory skills such as poets, authors, and attorneys exhibit strong linguistic intelligence.

Logical/Linguistic. The category of intelligence refers to an individual's ability to do things with data: collect, organize, analyze, and interpret, conclude and predict. Individuals strong in this intelligence see patterns and relationship. These individuals are oriented toward thinking: inductive and deductive logic, numeration, and abstract patterns. Teachers can strengthen this intelligence by encouraging the use of computer programing languages, critical thinking, linear outlining, cognitive stretching exercises, science-fiction scenarios, logic puzzles, and through the use of logical/sequential presentation of subject matter.

Visual/Spatial. This intelligence refers to the ability to form and manipulate a mental model. Individuals with strength in this area depend on visual thinking and very imaginative. People with this king of intelligence tend to learn most readily from visual presentations such as movies, pictures, videos, and demonstrations using models and props. These individuals often daydream, imagine and pretend. They are good in reading diagrams and maps and enjoy solving mazes and jigsaw puzzles. Teachers can foster this type of intelligence by utilizing charts, graphs, diagrams, graphic organizers, videotapes, color, art activities, doodling, microscopes and computer graphics software.

Bodily Kinesthetic. This intelligence characterizes people who process information through the sensations they feel in the bodies. These people like to move around, touch the people they are talking to and act things out. They are good at small and

large muscle skills; they enjoy all types of sports and physical activities. They often express themselves through dance. Teachers may encourage growth in this area of intelligence through the use of touching, feeling, movement, improvisation, "hands-on" activities, permission to squirm and wiggle, facial expressions and physical relaxation exercises.

Naturalistic. Naturalistic intelligence is seen in someone who recognizes and classifies plants, animals, and minerals including a mastery of taxonomies. They are holistic thinkers who recognize specimens and value the unusual. They notice natural and artificial taxonomies such as dinosaurs to algae and cars to clothes. Teachers can best foster this intelligence by using relationships among system of species, and classification activities. They can encourage the study of relationships such as patterns and order, and compare-and-contrast sets of groups or look at connections to real life and science issues.

Musical/Rhythmic. This is known as the ability to understand, create and interpret musical pitches, timbre, rhythm, and tones and the capability to compose music. Teachers can integrate activities into their lessons that encourage students' musical intelligence by playing music for the class and assigning tasks that involve students creating lyrics about the material being taught.

Interpersonal. This intelligence is the ability to interpret and respond to the moods, emotions, motivations, and actions of others. It also requires good communication and interaction skills and the ability to show empathy towards the feelings of other individuals. Teachers can encourage the growth of interpersonal intelligences by designing lessons that include group work and by planning cooperative activities.

Intrapersonal. This is the ability to know oneself. It is an internalized version of interpersonal intelligence. To exhibit strength in intrapersonal intelligence, an individual must be able to understand his own emotions, motivations, and be aware of their own strengths and weaknesses. Teachers can assign reflective activities, such as journing to awaken students' intrapersonal intelligence. It is important to note that this intelligence involves the use of all others. An individual should tap into their other intelligences to completely express their intrapersonal intelligence.

Existential. This intelligence encompasses the ability to pose and ponder questions regarding the existence—including life and death. Reflective and deep thinking, design abstract theories, In careers it might be scientist, philosopher, theologian.

The 9 Intelligences of MI Theory

	Intelligence	Visualization	Skills Preferences
1.	**Verbal-Linguistic Intelligence** Well-developed verbal skills and sensitivity to the sounds, meanings and rhythms of words		Skills - Listening, speaking, writing, teaching.

2.	**Mathematical-Logical** Intelligence Ability to think conceptually and abstractly, and capacity to discern logical or numerical patterns		Skills - Problem solving (logical & math), performing experiments
3.	**Musical Intelligence** Ability to produce and appreciate rhythm, pitch and timber		Skills - Singing, playing instruments, composing music
4.	**Visual-Spatial Intelligence** Capacity to think in images and pictures, to visualize accurately and abstractly		Skills - puzzle building, painting, constructing, fixing, designing objects
5.	**Bodily-Kinesthetic Intelligence** Ability to control one's body movements and to handle objects skillfully		Skills - Dancing, sports, hands on experiments, acting
6.	**Interpersonal Intelligence** Capacity to detect and respond appropriately to the moods, motivations and desires of others		Skills - Seeing from other perspectives, empathy, counseling, co-operating
7.	**Intrapersonal Intelligence** Capacity to be self-aware and in tune with inner feelings, values, beliefs and thinking processes		Skills - Recognize one's S/W, reflective, aware of inner feelings
8.	**Naturalist Intelligence** Ability to recognize and categorize plants, animals and other objects in nature		Skills - Recognize one's connection to nature, apply science theory to life
9.	**Existential Intelligence** Sensitivity and capacity to tackle deep questions about human existence, such as the meaning of life, why do we die, and how did we get here		Skills – Reflective and deep thinking, analysis, design abstract theories

Source : http://web.cortland.edu/andersmd/learning/MITable.htm

According to Aquino (2009), using multiple learning styles and multiple intelligences for learning is a relatively new approach. This approach is one that educators have only recently started to recognize. Traditional schooling used (and continues to use) mainly linguistic and logical teaching methods. It also uses a limited range of learning and teaching techniques. Many schools still rely on classroom and book-based teaching, much repetition, and pressured exams for reinforcement and review. A result is that we often label those who use these learning styles and techniques as bright. Those who use less favored learning styles often find themselves in lower classes, with various not-so-complimentary labels and sometimes lower quality

teaching. This can create positive and negative spirals that reinforce the belief that one is "smart" or "dumb".

In addition Aquino (2009) cited that there are Ways of learning. The different ways to learn are embedded in the world of LEARNING. They are as follows:
L- Listen. The learners need to listen to those with whom they can extend their knowledge. They must also listen to their inner voice and feel how such voice echoes deep within them. E- Evolve. Learning must change the learner from one form to other. It means that the learners need to follow the ladder of knowledge. They do not just confine themselves to acquiring mere facts. Rather, they create their own personal ladder of knowledge and start their journey from ignorance to wisdom. A- Adapt. The learners change their cognitive structures in order to accommodate new bits of information. They monitor, regulate, and modify their own thoughts and create new avenues for transformation. R- Reciprocate. The learners are able to recognize their personal worth and contribute to the welfare of the welfare of the majority. It means that they are able to transcend what they have learned and use it for the benefits of all. N- Network. The learners do not limit themselves to the confines of the classroom. Rather, they go out and explore new horizons and acquires novel experiences as they share their learning to others. I- Integrate. The learners have the ability to organize their knowledge around the existing schemata which they use to aid understanding. N- Navigate. The learners are willing to explore new things and follow the right path of learning. They find meanings as well as enjoyment while they are on their journey to learning. G- Grow. The learners do not just accept things as they are. Rather, they quibble about how and why things are done. They grow from their own mistakes and use such mistakes as building blocks to learning.

Avelina (2009) also stressed out the Ways to Promote Learning. There is no single best idea or recipe to promote learning in the classroom. Teachers are eclectic; they tend to utilize a mix of strategies that can promote meaningful learning. Here are some ways of teaching for meaning learning by: Giving productive feedbacks. Useful and immediate feedback to the learners can help them practice their cognitive tasks. Providing concreteness, activity, and familiarity. Teachers should make the lessons concrete, activity-based, familiar, and simple-to-complex based procedures in academic tasks. Explaining examples. Teachers need to explain the step-by-step procedures in academic tasks. Guiding cognitive processing during learning. The teachers are on task monitor or supervise the learners while learning occurs.

Fostering learning strategies. Teachers should provide instruction for learning a new material. Fostering problem-solving strategies. Teachers should provide the necessary instructions and ways in order to solve problems. Creating cognitive apprenticeship. Teachers should encourage the learners to actively participate in group tasks. Priming students motivation to learn. Teachers should build on students desire to learn.

This improves the speed and quality of their learning. Recognizing which style is preferred by the students is not enough to suggest that one is better than the other, rather, it serves to help the teachers to work out strategies when certain teaching and learning methods don’t suit their style.

Research Questions

1. What are the preferred learning styles of the student respondents in Filipino as perceived by the students themselves?
2.What are the teaching styles of the teachers in their Filipino subjects as perceived by the teachers themselves?
3.Is there a significant difference between the preferred learning styles of the students and the teachers' teaching styles in Filipino 8 in terms of the following categories?
a.Verbal/Linguistic Style,
b. Logical/Mathematical Style
c. Visual/Spatial Style,
d. Bodily Kinesthetic Style,
e. Naturalist Style,
f. Musical/Rhythmic Style,
g. Interpersonal Style,
h. Intrapersonal Style,
i. Existential Style.
4. What learning modules could be developed based on the results of the study?

Scope and the Delimitations of the Study

This study confined the delimitation of the preferred learning styles of the students, relative to the subject of Filipino of Eusebio High School, Division of Pasig City, School Year 2017-2018 and which will be serve as a basis in developing a learning module in Filipino-8

The students' respondents compose of 40% of total number (912) of the Grade 8 students randomly selected through draw lots and 5 Filipino-8 teachers in Eusebio High School, Division of Pasig City School Year 2017-2018. To identify the learning styles of the students, the researcher will use the Howard Gardner Nine Distinct Learning Styles ; 1) Verbal/Linguistic 2)Logical/Mathematical 3)Visual/Spatial 4)Bodily Kinesthetic 5)Naturalist 6)Musical/Rhythmic 7)Interpersonal 8)Intrapersonal and 9) Existential

Methods of Research Used

The researcher will use descriptive method in this study. According to the book of Gaudencio (2015) , descriptive research involves the description, recording, analysis, and interpretation of the present nature, composition or processes or phenomena. The focus is on prevailing condition. In the book of Alicay (2014) descriptive method is a kind of study that describes the nature of a situation as it exists at the time of the study and explores the causes of a particular phenomenon. It is concerned of determining the present conditions or characteristics of a research subject. According to Abraham Robinson (2010) The descriptive method of research, as opposed to an experimental or normative method, develops knowledge by describing observed situations, events and objects. The descriptive method is used in most branches of science, as well as in the social sciences. the descriptive method was used when describing a situation or an area of interest factually and accurately. It is something of ordered reasoning.

It is something beyond data gathering. Data must be subjected to the thinking process in terms of ordered reasoning. In this study, it is used to ascertain the prevailing the

students preferences with regards to their learning styles and to be the basis in the developing a learning module in Filipino-8.

Sources of Data

The data will be sourced from the Grade 8 students of Eusebio High School during the school year 2017-2018. Compose of 385 students and 5 Grade 8 Filipino Teachers. The student respondents will be selected through random sampling – draw lots.

To determine sample size, the researcher used the .05 marginal error. The table below shows the sources of data.

Table 1. Number of Sections, Number of Students, Percentage and Sample

Sections	***Number of Students***	***Sample (40%)***
1	39	16
2	43	17
3	45	18
4	45	18
5	44	17
6	48	20
7	47	19
8	47	19
9	46	18
10	49	20
11	47	19
12	44	17
13	46	18
14	48	20
15	44	17
16	46	18
17	46	18
18	49	21
19	45	18
20	44	17
20 sections	***912***	***365***

Table 1 shows the number of Sections, the number of total students per section and the number of sample size per section and its percentage. The total number of sample size is 40% or 365 students.

Table 2. *Total Number of Teacher Respondents*

Teachers	Male	Female	Total	Sample
Grade 8 Filipino Teacher	1	4	5	5

Table 2 shows the number of Teacher respondents by gender. The total number of sample size is 5.

Data Gathering Procedure

The data gathering instrument used in this study was the questionnaire. The researcher composed a questionnaire, to be checked and approved by his adviser. The questionnaire will also undergo a validation process by some Teaching Strategy Professors in Marikina Polytechnic College and 2 Filipino / Language Head Teacher, from Eusebio High School and 4 Master Teachers in Filipino Department. After the instruments evaluated and validated, the researcher ask first a consent and permission to the Schools Division Superintendent and School Principal of Eusebio High School, afterwards the researcher distributed the checklist questionnaire to the respondents. The questionnaire personally distributed and administered by the researcher to the respondents. He instructed them to carefully read the instruction and to answer the items with accuracy. There was no time limit so the respondents had been given sufficient time to answer without pressure from our administering members. The checklist were retrieved after all the respondents had finished answering and the data were den tallied, treated statistically, analyzed and interpreted.

Statistical Treatment of Data

The data that will be gathered in the study are subjected to the following statistical treatment:
Percentage was utilized to describe the students profile variables in terms of gender, learning resources available at home, and economic status. It was also used to describe teachers profile variables in terms of length; teaching experience and trainings / seminar attended.

Ranking was also utilized to determined degree of preferences of student and teaching to the identified learning and teaching styles.

Weighted Mean was used to determine the preferred learning styles of the students' respondents and the match teaching styles of the teachers' respondent.

T-Test was used to know the significant difference between the learning style of the students to the teaching style of the teachers.

Discussion of Results and Recommendations

Table 3 .Level of Learning and Teaching Styles
of Students and Teachers in FilipinoSubject on Verbal/Linguistic Styles

Verbal/Linguistic Styles	STUDENT RESPONDENTS			TEACHER RESPONDENTS		
	WM	Rank	VI	WM	Rank	VI
1. Isahan o Sabayang Pagbasa	3.06	5	O	3.60	3.5	VO
2. Pag-uulat	3.29	2	O	4.60	1	A
3. Tanong at Sagot	3.26	4	O	4.00	2	VO
4. Malikhaing Pagkukwento	3.28	3	O	3.60	3.5	VO

5.	Pakikipanayan	3.74	1	VO	3.40	5	O
Overall Mean		**3.33**		**O**	**3.84**		**VO**

Table 3 manifests that the use of verbal/linguistic style in teaching Filipino is at Often (O) as perceived by the students themselves as evidenced by the weighted means ranging 3.06 to 3.29 and an overall weighted mean of 3.33. However, there is one indicator rated at Very Often (VO) as shown by the weighted mean of 3.74. This is the indicator No.5 " Pakikipanayam"

On the other hand, the teachers perceived that they have used the verbal/linguistic teaching styles at Very Often (VO) as evidenced by the weighted means ranging 3.60 to 4.00 and an overall weighted mean of 3.84.

The results implies that the teachers should plan and create activities involving "Pakikipanayam" as part of the learning process of the students.

Table 4. Level of Learning and Teaching Styles of Students and Teachers in Filipino Subject on Logical/Mathematical Style

Logical/Mathematical Styles		**STUDENTS RESPONDENTS**			**TEACHERS RESPONDENTS**		
		WM	**Rank**	**VI**	**WM**	**Rank**	**VI**
1.	Palabuuan	3.68	2	VO	4.60	1	A
2.	Pakikipagtalo	3.24	3.5	O	3.40	5	O
3.	Pagsunud-sunod	3.79	1	VO	3.60	4	VO
4.	Sanhi at Bunga	3.09	5	O	4.20	2	VO
5.	Paghihimay-himay	3.24	3.5	O	3.80	3	VO
Overall Mean		**3.40**		**O**	**3.92**		**VO**

Table 4 manifests that the use of logical/mathematical style in teaching Filipino is at Often (O) as perceived by the students themselves as evidenced by the weighted means ranging 3.09 to 3.24 and an overall weighted mean of 3.40 However, there are two indicators rated at Very Often (VO) with weighted mean of 3.68 and 3.79. This are the indicators No.1 "Palabuuan" and No.3 "Pagsusunod-sunod"

On the other hand, the teachers perceived that they have used the logical/mathematical teaching styles at Very Often (VO) as evidenced by the weighted means ranging of 3.60 to 4.20. However, there are two indicators that rated Always (A) and Often (O), as shown by the weighted mean of 4.60 and 3.40. This are the indicators No. 1 "Palabuuan" and No.2 "Pakikipagtalo"

The results indicate that the students preferred in learning are the "Palabuuan at Pagsusunod-sunod" and with that the teachers should prepare discussions with this kind of learning activities.

Table 5. Level of Learning and Teaching Styles of Students and Teachers in Filipino Subject on Visual/Spatial Style

Visual/Spatial Styles	STUDENTS RESPONDENTS			TEACHERS RESPONDENTS		
	WM	Rank	VI	WM	Rank	VI
1. Pagguhit	2.68	5	O	3.80	5	VO
2. Babasahing Popular	3.88	1	VO	4.60	1	A
3. Makabagong paraan	3.17	2	O	4.00	4	VO
4. Makateknolohiya	3.10	3	O	4.40	2	VO
5. Pagpupulong at pagpaplano	2.89	4	O	4.20	3	VO
Overall Mean	**3.14**		**O**	**4.20**		**VO**

Table 5 manifests that the use of visual/spatial style in teaching Filipino is at Often (O) as perceived by the students themselves as evidenced by the weighted means ranging 2.68 to 3.17 and an overall weighted mean of 3.14. However, there is one indicator rated at Very Often (VO) as shown by the weighted mean of 3.88. This is the indicators No.2 “Babasahing Popular”.

On the other hand, the teachers perceived that they have used the visual/spatial style at Very Often (VO) as evidenced by the weighted mean of 4.20. However, there is one indicator that rated Always (A) as shown by the weighted mean of 4.60. This is the indicator No. 2 “Babasahing Popular”

The results implies that students wants to learn thru the use of “ Babasahing popular” like magazines, newspapers, comics etc. in tackling lessons specially in Filipino subject.

Table 6. Level of Learning and Teaching Styles of Students and Teachers in Filipino Subject on Bodily Kinesthetic Style

Bodily Kinesthetic Styles	STUDENTS RESPONDENTS			TEACHERS RESPONDENTS		
	WM	Rank	VI	WM	Rank	VI
1. Tablu	3.89	1	VO	4.60	1.2	A
2. Pagsasadula	3.60	3	VO	4.60	1.2	A
3. Interpretatibong Sayaw	3.02		O	4.20		VO

		5			5	
4. Palaro	3.72	2	VO	4.60	1.2	A
5. Pagtatanghal	3.36	4	O	4.60	1.2	A
Overall Mean	**3.52**		**VO**	**4.52**		**A**

Table 6 manifests that the use of bodily kinesthetic style in teaching Filipino is at Very Often (VO) as perceived by the students themselves as evidenced by the weighted means ranging 3.60 to 3.89 and an overall weighted mean of 3.52. How ever there are two indicators rated Often (O) these are indicators No. 3 "Interpretatibong Sayaw" and No. 5 "Pagtatanghal"

On the other hand, the teachers perceived that they have used the bodily kinesthetic teaching style at Always (A) as shown by weighted mean 4.52.

The results recommend that the teachers should consider in preparing activities involving Tablu, Palaro at Pagsasadula in order for them to be more participative in the learning process inside the classroom.

Table 7. Level of Learning and Teaching Styles of Students and Teachers in Filipino Subject on Naturalist Style

Naturalist Styles	**STUDENTS RESPONDENTS**			**TEACHERS RESPONDENTS**		
	WM	**Rank**	**VI**	**WM**	**Rank**	**VI**
1. Pagbubulay-bulay	3.07	4	O	3.40	3.5	O
2. Pag-uugnay	2.47	5	S	3.20	5	O
3. Paghahambing	3.49	2	O	3.40	3.5	O
4. Paggamit ng obserbasyon	3.66	1	VO	3.60	1.5	VO
5. Pagpokus	3.22	3	O	3.60	1.5	VO
Overall Mean	**3.18**		**O**	**3.44**		**O**

Table 7 manifests that the use of naturalist style in teaching Filipino is at Often (O) as perceived by the students themselves as evidenced by the weighted means ranging 3.07 to 3.49 and an overall weighted mean of 3.18. However, there is one indicator rated at Very Often (VO) as shown by the weighted mean of 3.66 and one indicator rated Seldom (S) with weighted mean of 2.47 this is indicator No. 2 "Pag-uugnay".

On the other hand, the teachers perceived that they have used the naturalist teaching styles at Often (O) as evidenced by the weighted mean of 3.44. However, there are two indicators that rated Very Often (VO) as shown by the weighted mean of 3.60. This are the indicators No. 4 "Paggamit ng obserbasyon" and No.5 "Pagpokus"

The result implies that in this learning style the students are preferred in "Paggamit ng obserbasyon" as a reference in creating literary works, this style should consider by our educators in planning classroom activities.

Table 8. Level of Learning and Teaching Styles of Students and Teachers in Filipino Subject on Musical/Rhythmic Style

Musical/Rhythmic Styles	STUDENT RESPONDENTS			TEACHER RESPONDENTS		
	WM	Rank	VI	WM	Rank	VI
1. Masining na Pag-awit	3.54	3	VO	4.20	1	VO
2. Modernong Balagtasan	3.64	2	VO	3.60	3.33	VO
3. Sa saliw ng musika	3.07	4	O	4.00	2	VO
4. Malikhaing Pagsulat	3.02	5	O	3.60	3.33	VO
5. Pag-uugnay	3.93	1	VO	3.60	3.33	VO
Overall Mean	**3.44**		**VO**	**3.80**		**VO**

Table 8 manifests that the use of musical/rhythmic style in teaching Filipino is at Very Often (VO) as perceived by the students themselves as evidenced by the weighted means ranging 3.54 to 3.93 and an overall weighted mean of 3.44. However, there are two indicators rated at Often (O) as shown by the weighted mean of 3.07 and 3.02. This are the indicator No.3 “Sa saliw ng musika” and No.4 “Malikhaing Pagsulat”.

On the other hand, the teachers perceived that they have used the musical/rhythmic teaching styles at Very Often (VO) as evidenced by the weighted mean of 3.80. All indicators rated as Very Often (VO) with weighted means ranging 3.60 to 4.20.

The results implies that the students wants in this style is “Pag-uugnay” relating old and new songs in tackling lessons. The students preferred integrating music while learning literature.

Table 9. Level of Learning and Teaching Styles of Students and Teachers in Filipino Subject on Interpersonal Style

Interpersonal Styles	STUDENT RESPONDENTS			TEACHER RESPONDENTS		
	WM	Rank	VI	WM	Rank	VI
1. Pagtatalong Patula	3.35	3	O	3.00	5	O
2. Pakikibahagi	3.32	4	O	4.00	3	VO
3. Iba’t ibang istratehiya gamit ang mga organayser	3.88	1	VO	3.80	4	VO
4. Pagbisita	3.04	5	O	4.60	1	A
5. Paglahok sa mga Paligsahan	3.75	2	VO	4.40	2	VO
Overall Mean	**3.47**		**O**	**3.96**		**VO**

Table 9 manifests that the use of interpersonal style in teaching Filipino is at Often (O) as perceived by the students themselves as evidenced by the weighted means ranging 3.04 to 3.35 and an overall weighted mean of 3.47. However, there are two indicators rated at Very Often (VO) as shown by the weighted mean of 3.88 and 3.75. This are the indicator No.3 "Iba't ibang istratehiya gamit ang mga organayser" and No.5 "Paglahok sa mga paligsahan"

On the other hand, the teachers perceived that they have used the interpersonal teaching styles at Very Often (VO) as evidenced by the weighted mean of 3.96. However, there are two indicators rated Often (O) and Always (A) as shown by the weighted mean of 3.00 and 4.60. These are the indicators No. 1 "Pagtatalong patula" and No.4 "Pagbisita".

The result implies that the grade 8 students love to use different kinds of organizers in discussing literary works and "Paglahok sa mga paligsahan" as their output in learning Filipino subject. The teachers should consider these things.

Table 10. Level of Learning and Teaching Styles of Students and Teachers in Filipino Subject on Intrapersonal Style

Intrapersonal Styles	**STUDENTS RESPONDENTS**			**TEACHERS RESPONDENTS**		
	WM	**Rank**	**VI**	**WM**	**Rank**	**VI**
1. Pagsusuri	3.00	4	O	4.40	1	VO
2. Saliksik	2.80	5	O	3.40	5	VO
3. Paglilipat	3.20	3	O	3.60	4	VO
4. Repleksiyon o pagbubulay-bulay	3.50	1	VO	3.80	2.5	VO
5. Malakas at Tahimik na pagbasa	3.21	2	O	3.80	2.5	VO
Overall Mean	**3.14**		**O**	**3.80**		**VO**

Table 10 manifests that the use of intrapersonal style in teaching Filipino is at Often (O) as perceived by the students themselves as evidenced by the weighted means ranging 2.80 to 3.21 and an overall weighted mean of 3.14. However, there is one indicator rated at Very Often (VO) as shown by the weighted mean of 3.50. This is the indicator No.4 "Repleksiyon o pagbubulay-bulay".On the other hand, the teachers perceived that they have used the intrapersonal teaching styles at Very Often (VO) as evidenced by the weighted mean of 3.80. All indicators got Very Often (VO).

The results implies that the learners particularly in the Grade 8 level, they preferred "Repleksiyon o pagbubulay-bulay" as their way of realization and internalization of the moral lessons reflecting in the topics discussed. The teachers should prepare more activities that the students will engage to this kind of learning.

Table 11. Level of Learning and Teaching Styles of Students and Teachers in Filipino Subject on Existential Style

Existential Styles	STUDENT RESPONDENTS			TEACHER RESPONDENTS		
	WM	**Rank**	**VI**	**WM**	**Rank**	**VI**
1. Pangkatang Gawain	2.72	5	O	3.20	5	O
2. Pagbabahagi ng kaalaman	3.30	2	O	3.80	2.5	VO
3. Pag-aanalisa	2.83	4	O	3.80	2.5	VO
4. Pataas na antas ng Pagkatuto	3.62	1	O	3.40	4	O
5. Paghahambing at Pag-iiba	3.03	3	O	4.20	1	VO
Overall Mean	**3.10**		**O**	**3.68**		**O**

Table 11 manifests that the use of Existential style in teaching Filipino is at Often (O) as perceived by the students themselves as evidenced by the weighted means ranging 2.72 to 3.62 and an overall weighted mean of 3.10. On the other hand, the teachers perceived that they have used the existential teaching styles at Often (O) as evidenced by the overall weighted mean of 3.68.The data stated that student and teacher respondents got the same result as rated at Often (O), this implies that this is the least preferred learning and teaching style in the subject of Filipino. The teachers can use the 8 other learning styles in teaching Filipino.

Table 12. Level of Learning Styles of Students in Filipino Subject : Overall Summary

Learning Styles	Student Respondents			Teacher Respondents		
	WM	RANK	VI	WM	RANK	VI
VERBAL/LINGUISTIC	**3.33**	**5**	**O**	**3.84**	**5**	**VO**
LOGICAL/MATHEMATICAL	**3.40**	**4**	**O**	**3.92**	**4**	**VO**
VISUAL/SPATIAL	**3.14**	**7.5**	**O**	**4.20**	**2**	**VO**
BODILY KINESTHETIC	**3.52**	**1**	**VO**	**4.52**	**1**	**A**
NATURALIST	**3.18**	**6**	**O**	**3.44**	**9**	**O**
MUSICAL/RHYTHMIC	**3.44**	**3**	**VO**	**3.80**	**6.5**	**VO**
INTERPERSONAL	**3.47**	**2**	**O**	**3.96**	**3**	**VO**
INTRAPERSONAL	**3.14**	**7.5**	**O**	**3.80**	**6.5**	**VO**
EXISTENTIAL	**3.10**	**9**	**O**	**3.68**	**8**	**O**
Overall Weighted Mean	**3.30**		**O**	**3.91**		**VO**

The table reflects the students' most preferred learning styles. These are ranked from 1-9 (best to least), respectively, as follows: 1) Bodily Kinesthetic, 2) Interpersonal, 3) Musical/Rhythmic, 4) Logical/Mathematical, 5) Verbal/Linguistic, 6) Naturalist 7.5) Visual/Spatial 9) Existential.

These findings imply that the Filipino teachers are truly belong to the 21st century teachers because they use the nine teaching styles based on the multiple intelligences as posited by Gardner in teaching their students in Filipino. The students' perceptions also show that almost the teaching styles of their teachers are also their preferred learning styles.

The result of the study shows that almost of the preferred learning styles of the students are also the preferred teaching styles of the modern teachers today. It is a unique result that the Bodily Kinesthetic, Logical/Mathematical, Verbal/Linguistic Category came out to be rank 1, rank 4 and rank 5 as perceived by the students and the teachers, respectively, but we can also consider that there are some differences between the learning at teaching preferences of the students and the teachers today. The overall finding is that the learning at teaching styles of the students and teachers in the grade 8 level are almost the same.

Table 13. Significant Difference between on the Preferences on Learning and Teaching Styles between Students and Teachers on Verbal/Linguistic Style

Respondents	N	Mean	Std. Deviation	t	df	p-value	Decision
Students	365	3.331	0.779	-1.223	368	.222	Do not reject null hypothesis
Teachers	5	3.840	0.498				

The t-test result comparing the difference on the preferences of the learning and teaching styles of between students and teachers in Filipino subject on verbal/linguistic styles was presented in Table 13. With the t-value of -1.223 and p-value of 0.222 higher than the 0.05 level of significance, the null hypothesis is not rejected. Thus, the assumption of significant difference on preferences of the learning and teaching styles between students and teachers on verbal styles cannot be proven for lack evidences.

Table 14. Significant Difference on the Preferences on Learning and Teaching Styles between Students and Teachers on Logical/Mathematical Style

Respondents	N	Mean	Std. Deviation	t	df	p-value	Decision
Students	365	3.401	0.826	-1.971	368	.049	Reject null hypothesis
Teachers	5	3.920	0.576				

The t-test result comparing the difference on the preferences of the learning and teaching styles of between students and teachers in Filipino subject on logical/mathematical styles was presented in Table 14. With the t-value of -1.971 and p-value of 0.049 slightly lesser than the 0.05 level of significance, thus the null hypothesis is rejected in favor of the alternative hypothesis. Therefore, there is a significant difference on preferences of the learning and teaching styles between students and teachers on logic styles.

Table 15. Significant Difference on the Preferences on Learning and Teaching Styles between Students and Teachers on Visual/Spatial Style

Respondents	N	Mean	Std. Deviation	t	df	p-value	Decision
Students	365	3.140	0.657	-2.470	368	.014	Reject null hypothesis
Teachers	5	4.200	0.600				

Table 15 present the t-test result comparing the difference on the preferences of the learning and teaching styles of between students and teachers in Filipino subject on visual/spatial styles. With the t-value of -2.470 and p-value of 0.014 lower than the 0.05 level of significance, thus the null hypothesis is rejected, and alternative hypothesis is accepted. Therefore, it is concluded that there is a significant difference on preferences of the learning and teaching styles between students and teachers on visual styles.

Table 16. Significant Difference on the Preferences on Learning and Teaching Styles between Students and Teachers on Bodily Kinesthetic Style

Respondents	N	Mean	Std. Deviation	t	df	p-value	Decision
Students	365	3.520	.853	-3.684	368	.000	Reject null hypothesis
Teachers	5	4.520	.856				

The t-test result comparing the difference on the preferences of the learning and teaching styles of between students and teachers in Filipino subject on bodily kinesthetic styles was presented in Table 16. With the t-value of -3.684 and p-value of 0.000 lesser than the 0.05 level of significance, the null hypothesis is rejected in favor of the alternative hypothesis. Hence, the claim of significant difference on preferences of the learning and teaching styles between students and teachers on bodily styles was proven statistically.

Table 17. Significant Difference on the Preferences on Learning and Teaching Styles between Students and Teachers on Naturalist Style

Respondents	N	Mean	Std. Deviation	t	df	p-value	Decision
Students	365	3.180	0.832	-0.289	368	.772	Do not reject null hypothesis
Teachers	5	3.440	0.434				

The t-test result comparing the difference on the preferences of the learning and teaching styles of between students and teachers in Filipino subject on naturalist styles was presented in Table 17. With the t-value of -0.289 and p-value of 0.772 much greater than the 0.05 level of significance, the null hypothesis is not rejected. Thus, the assumption of significant difference on preferences of the learning and teaching styles between students and teachers on nature styles cannot be proven for lack evidences.

Table 18. Significant Difference on the Preferences on Learning and Teaching Styles between Students and Teachers on Musical/Rhythmic Style

Respondents	N	Mean	Std. Deviation	t	df	p-value	Decision
Students	365	3.440	0.849	-1.821	368	.069	Do not reject null hypothesis
Teachers	5	3.840	0.555				

The t-test result comparing the difference on the preferences of the learning and teaching styles of between students and teachers in Filipino subject on musical/rhythmic styles was presented in Table 18. With the t-value of -1.821 and p-value of 0.069 little higher than the 0.05 level of significance, the null hypothesis is not rejected. Thus, the statement of significant difference on preferences of the learning and teaching styles between students and teachers on music styles cannot be proven for lack evidences.

Table 19. Significant Difference on the Preferences on Learning and Teaching Styles between Students and Teachers on Interpersonal Style

Respondents	N	Mean	Std. Deviation	t	df	p-value	Decision
Students	365	3.470	0.758	-1.561	368	.119	Do not reject null hypothesis
Teachers	5	3.961	0.626				

The t-test result comparing the difference on the preferences of the learning and teaching styles of between students and teachers in Filipino subject on interpersonal styles was presented in Table 19. With the t-value of -1.561 and p-value of 0.119 much greater than the 0.05 level of significance, the null hypothesis is not rejected. Thus, the assumption of significant difference on preferences of the learning and teaching styles between students and teachers on inter styles cannot be proven for lack evidences.

Table 20. Significant Difference on the Preferences on Learning and Teaching Styles between Students and Teachers on Intrapersonal Style

Respondents	N	Mean	Std. Deviation	t	df	p-value	Decision
Students	365	3.140	0.711	-1.611	368	.108	Do not reject null hypothesis
Teachers	5	3.800	0.713				

The t-test result comparing the difference on the preferences of the learning and teaching styles of between students and teachers in Filipino subject on intrapersonal styles was presented in Table 20. With the t-value of -1.611 and p-value of 0.108 higher than the 0.05 level of significance, the null hypothesis is not rejected. Thus, the assumption of significant difference on preferences of the learning and teaching styles between students and teachers on intra styles cannot be proven for lack evidences.

Table 21. Significant Difference on the Preferences on Learning and Teaching Styles between Students and Teachers on Existential Style

Respondents	N	Mean	Std. Deviation	t	df	p-value	Decision
Students	365	3.100	0.694	-0.891	368	.374	Do not reject null hypothesis
Teachers	5	3.680	0.510				

The t-test result comparing the difference on the preferences of the learning and teaching styles of between students and teachers in Filipino subject on existential styles was presented in Table 21. With the t-value of -0.891 and p-value of 0.374 greater than the 0.05 level of significance, the null hypothesis is not rejected. Thus, the assumption of significant difference on preferences of the learning and teaching styles between students and teachers on exist styles cannot be proven for lack evidences.

Table 22. Significant Difference on the Preferences on Learning and Teaching Styles between Students and Teachers of Filipino

Respondents	N	Mean	Std. Deviation	t	df	p-value	Decision
Students	365	3.308	0.599	-2.239	368	.026	Reject null hypothesis
Teachers	5	3.911	0.548				

Table 22 shows the t-test result comparing the difference on the overall preferences of the learning and teaching styles of between students and teachers in Filipino subject. With the t-value of -2.239 and p-value of 0.026 lesser than the 0.05 level of significance, thus there is a strong evidence not reject the null hypothesis and accept the alternative hypothesis. Hence, the overall claim that there is significant difference on preferences of the learning and teaching styles between students and teachers have been be proven with strong statistical evidences.

Conclusions

Based on the findings of the study, the following conclusions are drawn:

1. The teaching and learning styles of the teachers and the students are almost the same, hence they complement each other's styles.
2. Teaching Module could be developed based on the identified learning and teaching styles of the students and teachers.

Recommendations

Based on the findings and conclusions of the study, the following recommendations are offered:

1. The Learning Module should be reproduced for the use of the Filipino-8 classes during 1st quarter of the school year at Eusebio High School and other Filipino teachers at District II Division of Pasig City. This should be done with the support of the school principal of the researcher.

2. Other Filipino teachers should develop similar Learning Modules for their classes based on the preferred learning styles of the students using the Learning Module as a model.

3. More activities should be developed by the team of Filipino teachers at Eusebio High School to cover the remaining quarters of the school year for Filipino subject matter using the different learning styles preferred by the students.

4. A parallel study should be conducted by other subject teacher researchers to determine the learning styles of the students so that they could use the findings as bases for adjusting the styles to be used by them in teaching their students.

5. The developed Learning Module in Filipino-8 (1st Quarter) should be validated by the researcher and other Filipino teachers in Grade 8 to determine its effectiveness in terms of the development of their knowledge, skills and attitudes in Filipino-8.

References

A. Books

Agnes, Wilma D, Ruiz, Florian L. and Pat C. Tiongson (2013) Ang Batikan Grade VIII, Quezon City, Phoenix Publishing House

Alicay, Calixto B (2014) Research Methods and Techniques, Quezon City, Great Books Publishing

Calderon, Jose F. and Encarnacion Gonzalez (2009), Methods of Research and Thesis Writing, Mandaluyong City: National Bookstore

Corpuz, Brenda B., et. Al (2010) Principles and Strategies of Teaching, Quezon City; Lorimar Publishing Co.Inc

Lavina, Chariemagne G. (2015) Thesis and Capstone Project Writing in Computing, Manila, Alemars-Phoenix Publishing House

B. Unpublished Materials

Del Barrio, Maria O. (2010) Preferred Teaching and Learning Styles in Technology and Livelihood Education, Unpublished Master's Thesis. Marikina Polytechnic College, Marikina City.

Fan, Gay A. (2010) G. Fan (May 2010) Students Learning Styles and Their Academic Performance., Unpublished Master's Thesis. Marikina Polytechnic College, Marikina City.

Quijado, Jose P. (2011) College Freshman Students Preferred Styles in Learning Science Subjects in Marikina Polytechnic College, Unpublished Master's Thesis Marikina Polytechnic College, Marikina City

Magtagad, Benjie Bryan Z. (2017) Teachers' Teaching Styles and Students' Preferred Learning Styles in P.E., Unpublished Master's Thesis. Marikina Polytechnic College, Marikina City.

Ochavo, (2003), Learning Styles of Public Intermediate Pupils., Unpublished Master's Thesis. Marikina Polytechnic College, Marikina City.

Internet

https://www.time4learning.com/learning-styles.shtml
https://www.learningrx.com/types-of-learning-styles-faq.htm
https://www.mindtools.com/mnemlsty.html
http://www.tecweb.org/styles/gardner.html
https://rapidbi.com/learning-styles-gardner-multiple-intelligence-theory/
www.lib.umi.com/dissertationsfullcit/9993732

A Review of the Active Learning Curriculum in Management Accounting Using the Felder and Soloman's Index of Learning Styles (ILS)

Wong Suay Peng, Singapore Management University, Singapore
Angela Koh, Singapore Management University, Singapore

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract
The study examines the effectiveness of active learning in Management Accounting (MA) in Singapore Management University (SMU). The aims of the paper are to determine student learning styles through the Felder and Soloman's Index of Learning Styles (ILS) instrument, if there is correlation with demographics and whether activities found effective matched learning preferences. Findings from the ILS instrument established a slight preference for Sensing and Visual learning styles. Findings from the second questionnaire concluded that the active learning curriculum comprising diverse activities succeeded in supporting formative learning. The results present a case for the active learning curriculum and fine-tuning certain teaching and learning components.

Keywords: active learning, management accounting, learning style preferences, Felder and Soloman's Index of Learning Styles (ILS)

iafor
The International Academic Forum
www.iafor.org

Introduction

The School of Accountancy in SMU has encouraged active learning in the undergraduate Management Accounting (MA) module since the School was established in 2001. However, there has not been a deliberate attempt to assess the effectiveness of the experiential learning curriculum and the influences on students' perceptions of learning activities to date.

Active learning had been defined as "any learning activity engaged in by students in a classroom other than listening passively to an instructor's lecture (Faust & Paulson, 1998, p. 4). While often termed as learning by doing, Lawrence (1994, p. 210) stated "it is learning by doing - but not 'just'; learning by doing… in action learning, we go further by making arrangements … to enhance the opportunities to learn from our experiences and to speed up the process". Silberman (1996, p. 4) imparted "when learning is active, the learner is *seeking* something. He or she wants an answer to a question, needs information to solve a problem, or is searching for a way to do a job".

The field of learning, learning style, cognition, strategies and teaching methods is undoubtedly complex as their relationship involves many elements within a learning process (Boström & Lassen, 2006), making a holistic evaluation of teaching and learning competencies challenging. Furthermore, with resource constraints, there has been increasing emphasis on efficiency and effectiveness as the university attempts to improve staff and student performance with less.

Management Accounting is an introductory module taken in the first or second year of the four-year Bachelor of Accountancy programme. A key learning outcome is to equip graduates with technical knowledge, skills and attitudes to function effectively as accounting professionals. Students understand cost concepts, cost measurement methods, cost behaviour and estimation, cost volume profit analysis, budgeting, variance analysis, capital budgeting and relevant costing. Upon completion, students are able to analyse, synthesize and evaluate financial information for managerial decision-making.

There are 120 to 160 students enrolled in MA each term. The small class size of 30 to 40 students is conducive for conducting active learning individually or in a group. The learning activities include Seminar Materials, Quick Checks, Homework, Group Project, Discussion Forum, Video and Group Activities on real life cases.

The research study examines:
i) the learning style preferences of a group of SMU students taking MA;
ii) whether gender and admission types influence their learning style preferences; and
iii) whether the active teaching and learning activities found effective by the students correspond with their learning style dimensions

The findings will guide curriculum review, delivery and assessment so that the pedagogy can cater to all types of learners. The results will be applied to help students increase awareness of their learning styles to develop into independent lifelong learners ready to grasp workplace opportunities through understanding their strengths and enhancing skills linked to the less preferred styles. Finally, the study hopes to

contribute new knowledge on the use of the ILS in MA education, and how active learning experiences can benefit both learners and educators.

Literature Review

In the American Accounting Association's *Active Learning Toolkit*, Hobson (2002, p. 1) declared that "active learning is about engagement". Active learning is "student participation in the teaching and learning process, where students themselves engage with and, to an extent, create their own learning experience" (Mitchell, 2002). The focus is on learning rather than teaching. Students construct meaning rather than acquire knowledge and analyse rather than memorise in a facilitated active learning environment that is a departure from the passive lecture pedagogy. Hence, deep learning is encouraged.

Active learning techniques are "activities that an instructor incorporates into the classroom to foster active learning". The active learning activities may include "short writing exercises in which students react to lecture material, to complex exercises in which students apply course material to 'real life' situations and/or new problems" (Faust & Paulson, 1998, p. 4). In MA, the instructor guides students from the processing of knowledge to the application of financial information (cost concepts, cost behaviour and estimation, cost volume profit analysis, budgeting, variance analysis, capital budgeting and relevance costing) in a wider context of managerial planning, decision making and evaluation.

There is much literature on learning styles (Dunn et al., 1995; Kolb, 1999; Kolb & Kolb, 2005; Keefe, 1985; Honey, 1988; Felder & Silverman, 1988; Felder & Spurlin, 2005; Larsen, McCright & Weisenborn, 2004). Despite the various perspectives, the common understanding is not all learners learn in the same way and thus facilitators who make an effort to accommodate the learning styles of the students during curriculum design, delivery and assessment can achieve constructive alignment, greater transfer of knowledge and higher learning effectiveness. Boström and Lassen (2006, p. 186) believed that "knowledge of learning styles, learning strategies and meta-cognition … give teachers tools to identify the individual traits that effectively impact on achievement and give each learner the opportunity to develop personal strengths" which then "empower students towards life-long learning".

On definitions of learning styles, Keefe (1985, p. 138) stated that a learning style was "recognised by observing a student's overt behaviour that indicated how a student learnt best" and had "cognitive, motivational and physiological elements". Park (2005, p. 5) described learning styles as "general characteristics showing individual differences, intrinsic procedures of information processing" identified as "learners' unique behavioural patterns with durability and stability regardless of changing situations". Others have defined learning styles as "a group of cognitive, affective, and physiological characteristics used as indicators of how a learner perceives, interacts with and responds to the learning environment" (Alkhasawe, Mrayyan, Docherty, Alashram, & Yousef, 2008, p. 574). In addition, Felder and Spurlin (2005, p. 103) explained learning styles as "the different strengths and preferences in the ways students take in and process information". When there was a mismatch between the learning styles of students in a class and the teaching style of the faculty, there were negative consequences such as boredom, inattentiveness, low motivation, poor

test performance, discouragement, curriculum change or drop out. The same undesirable outcomes due to incongruence between learning styles and teaching styles were also hypothesised in Van Zwanenberg, Wilkinson and Anderson (2000). Hence, it could be assumed that activities that fit to, or teaching adapted with, the learning styles of students could increase learning and chances of success. Smith (2010, p. 69) championed that "learning styles can be used to make learning accessible to a greater range and a number of students. However, it should not be seen as a compensatory or remedial move. There are positive benefits for all students in recognizing and valuing differences inside and outside the classroom, acknowledging how background and experience shape individual perceptions and attitudes, and how learning how to learn can be the most empowering learning of all".

The Felder-Silverman learning style model was conceived in 1988 to capture the differences in learning styles among engineering students. Instructors used the knowledge to design a teaching and learning approach that addressed the needs of all students. The associated and validated Felder and Soloman's Index of Learning Styles (ILS) questionnaire of 44 items is now currently used. The model classifies learners according to one of the following four learning style dimensions:

- *Sensing* (concrete, practical, oriented towards facts and procedures) or *intuitive* (abstract thinker, innovative, oriented toward theories and underlying meanings);
- *Visual* (prefer visual representations of presented material such as pictures, diagrams and flow charts) or *verbal* (prefer written and spoken explanations);
- *Active* (learn by trying things out, enjoy working in groups) or *reflective* (learn by thinking things through, prefer working alone or with a single familiar partner);
- *Sequential* (linear thinking process, learn in small incremental steps) or *global* learners (holistic thinking process, learn in large leaps) (Felder & Spurlin, 2005, p. 103).

Larsen, McCright & Weisenborn (2004) summarised the ILS as a straightforward instrument that assessed individual preferences on the four dimensions of learning. The four scales referred to the types of information that learners preferred. The visual/verbal scale indicated the sensory channel that was used more readily to process incoming information. The sensing/intuiting scale reflected the types of information that the learner preferred. The active/reflective scale referred to preferred information-processing patterns. The sequential/global scale showed the information comprehension model that was most often utilised. Felder and Spurlin (2005, p. 103; 110-111) in an examination of the application, reliability and validity of the ILS concluded that "the ILS is best used to allow individuals to compare the strengths of their relative learning preferences rather than offering comparisons with individuals" as "learning what those strengths are can be empowering and even transformative".

In an empirical study by Visser, Vreken and McChlery (2006), the ILS was used to compare the learning and teaching styles of Accounting students and lecturers in one United Kingdom and one South Africa university. On student learning styles and with regard to the active/reflective dimension, the majority's learning style was balanced with the rest skewed towards an active learning style. With regard to the sensing/intuitive dimension, the majority preferred a sensing learning style while a balance between sensing and intuitive was the second choice. On the visual/verbal dimension, many preferred a balance or a visual approach with few opting for verbal

learning. On the sequential and global dimension, the majority preferred a balance, with a preference for sequential learning next and a minority for global learning style. The researchers acknowledged that while it might not be possible to match each learner's learning style, they recommended planning for an environment to create opportunities for learner success whether through matching or mismatching.

Van Zwanenberg, Wilkinson and Anderson (2000) found their sample consisting of 59% business students and the rest engineering students to be more Active, Sensing, Visual and Sequential. In an exploratory study on business students using the ILS, Sandman (2014) established that the preferred learning styles for over 1,100 business students might depend more on the course than the major. The business students, rather than having a consistent preferred learning style, adapted their preferred learning style to the subject of the course. De Vita (2001) used the ILS to explore if cultural influences affected the learning style preferences of home and international students in an international business management class in the United Kingdom. The study revealed that each side of each dichotomous learning style dimension was amply represented. However, the scores reported by international students on active-reflective, sensing-intuitive and sequential-global learning style dimensions "show much wider measures of absolute and relative dispersion to those of home students, suggesting that greater variations of learning style preferences are present within culturally heterogeneous cohorts" (De Vita, 2001, p. 172-173). Also, international students for whom English was not their first language preferred the visual style of information perception. The findings advocated a multi-style teaching approach in multicultural educational settings.

The ILS is not without critique. The ILS was first designed for engineering education. Replication on students from other disciplines and generalisability had been questioned. The ILS had been compared to Kolb's Learning Style Inventory (LSI) (Kolb, 1999). Van Zwanenberg, Wilkinson and Anderson (2000) expressed concerns over the ILS' psychometric properties especially the low internal reliability and bipolarity of the scales and their definition. While the LSI appeared more robust with higher internal reliability, it did not achieve the minimum acceptable levels for psychometric instruments. Hence, both the ILS and LSI should be used to assist the individual student in personal development but not as predictors of performance. In another comparative study on the LSI and the ILS, Platsidou and Metallidou (2009) discovered both instruments to have similar psychometric weaknesses and limitations. Lastly, Hosford and Siders' (2010) study on the use of the ILS in medical education concluded that the factor structure, internal consistency and temporal stability of the ILS on the sample representative and justified. However, construct validity and specifically the convergent and discriminant validity of the visual/verbal and sequential/global dimensions needed further inquiry.

Methodology

In the first phase, the ILS instrument was used to uncover the learning styles of students taking MA in Term 1 of SMU's Academic Year 2018/19. It was the first time that any formal attempt had been made to profile individual learning preferences in such a context, to the best of the researchers' knowledge. The instrument was chosen as it was developed for classroom application and had been used extensively. Being completely online, the advantages were ease of administration and immediacy

of results. Importantly, the ILS was considered reliable, valid and suitable if "used to help instructors achieve balanced course instruction and to help students understand their learning strengths and areas for improvement" (Felder & Spurlin, 2005, p. 111).

The research was conducted during Week 3 after the add/drop course period and the student numbers and classes stabilised. In each of the four classes, the instructor explained the ILS questionnaire. The benefits of knowing their learning styles and how students could help themselves learn better were next related. The students were informed that anonymity was assured, participation was voluntary and they could opt out at any time. The amalgamated findings could be made known to them if they wished. The students' participation was sought through signed consent forms. Finally, instructions on how to complete the online questionnaire, to record and retain the results were given and the link to the online questionnaire provided. One hundred and twenty nine of 131 students took about 30 minutes to complete the exercise. Two students did not participate. The results of their learning styles were emailed to the students on Week 4. During the second phase, the questionnaire constructed by the researchers (Appendix 1) was administered during the last teaching week. The students ranked the effectiveness of each of the six key active learning activities from (1) Least effective to (7) Most effective. In addition, an open-ended question asked students to share what they liked or disliked about the learning activities and resources as well as suggest possible improvements. Five of the 129 students who participated in the ILS survey were not present. Hence, 124 students completed the two surveys. All research procedures were approved by SMU's Institutional Review Board (IRB).

The six key learning activities used in MA that promoted active learning and their corresponding learning style dimensions are summarised in Table 1 below and described with examples from Appendices 2 to 7:

Figure 1: Active learning activities and learning style dimensions

	Quick Checks	Homework	Seminar Materials	Video & Group Activities on real life cases	Group Project	Online Discussion Forum
Reflective: think through taught concepts	✓	✓	✓			✓
Active: apply the new information they have learnt in class	✓	✓		✓	✓	✓
Active: discuss with friends; interact with instructor	✓	✓	✓	✓	✓	✓
Sensing: use established methods to solve problems	✓	✓		✓	✓	✓
Sensing: relate to real world or practical situations		✓	✓	✓	✓	
Intuitive: integrate concepts to solve problems		✓		✓	✓	
Intuitive: multiple approaches to solve problems	✓	✓		✓	✓	
Sequential: guided steps/building block approach to solve problems	✓	✓	✓			
Global: roadmap/overview at beginning of activity; end of activity debrief		✓	✓	✓	✓	
Visual: pictures, charts, diagrams, graphs, numerical illustrations	✓	✓	✓	✓	✓	✓
Verbal: written and oral explanations	✓	✓	✓	✓	✓	✓

Findings

The participation rate was 96.1% (or 124 students of 129 students) for both surveys. The proportion of male students at about 40% and female students at about 60% had been the norm even for previous 2017 and 2018 academic year intakes. The two main types of admissions to SMU are from junior colleges/GCE A-Level (46%) and polytechnics (43%) with the rest (11%) from International Baccalaureate and international students (Table 1). The demographics of the sample who were between the ages of 19 and 26 years are shown in the descriptive statistics below:

Table 1: Demographics of sample

	Number	%
Total	**124**	**100%**
Gender		
• Male	49	39.5%
• Female	75	60.5%
Admit Type		
• Admitted from Junior College	57	46.0%
• Admitted from Polytechnic	53	42.7%
• Admitted from Others (from International Baccalaureate; international students)	14	11.3%

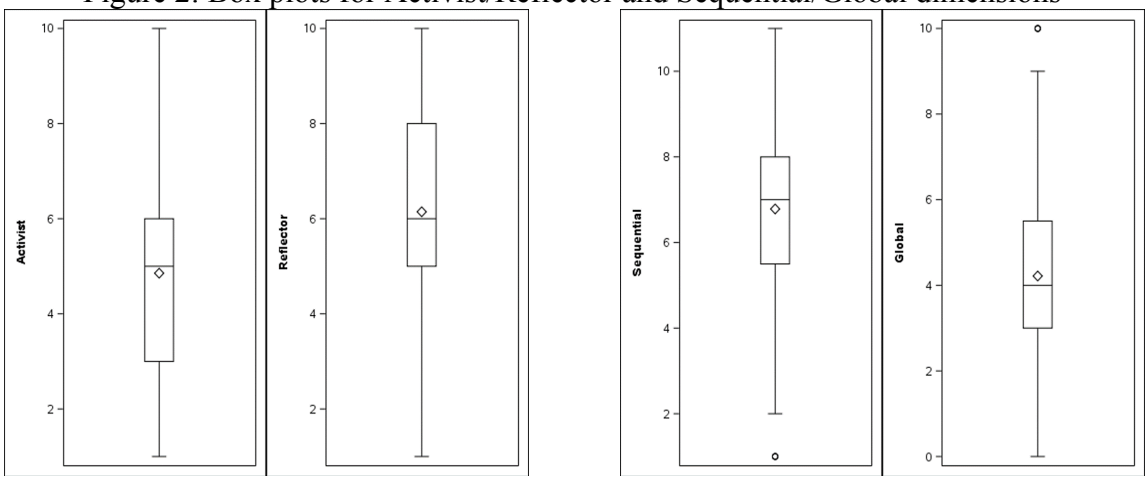
The ILS classified the learners under a particular learning style category (Active/Reflector; Sensing/Intuitive; Visual/Verbal; and Sequential/Global) based on the net score of the responses to 22 questions for each of the four distinct categories. To reduce the distortion that might arise from the bipolar measurement, we decided to use a unidimensional scale based on the responses to the 11 questions pertaining to each of the eight learning styles. From the ILS survey, the descriptive statistics of learning style preferences are shown in Table 2:

Table 2: Mean scores and standard deviation from ILS survey

Variable	N	Mean	Std Dev	Min	Max
Activist	124	4.855	2.035	1	10
Reflector	124	6.145	2.035	1	10
Sensing	124	7.298	2.375	0	11
Intuitive	124	3.702	2.375	0	11
Visual	124	7.831	2.148	2	11
Verbal	124	3.169	2.148	0	9
Sequential	124	6.782	2.211	1	11
Global	124	4.218	2.211	0	10

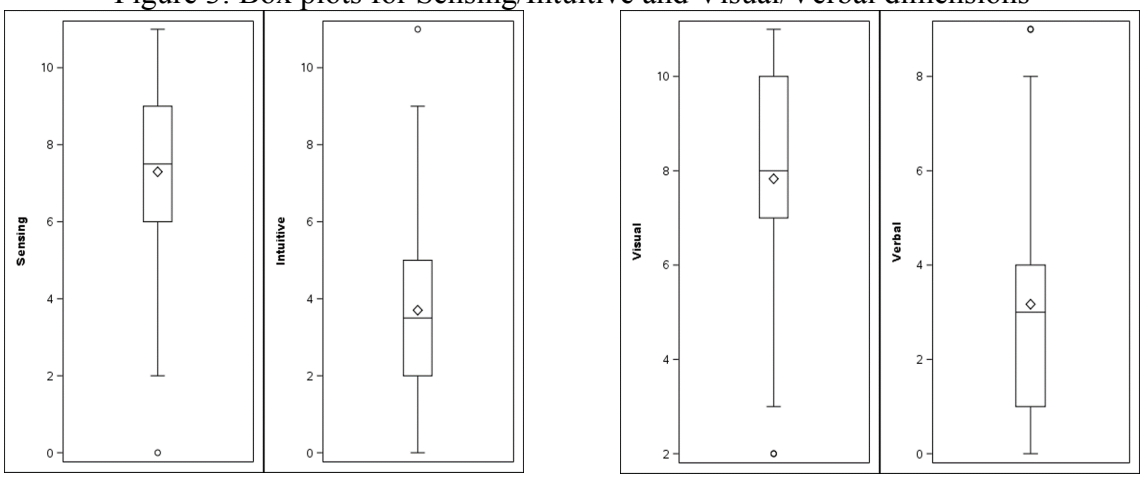
When comparing the learning style preferences visually by using box plots to map the spread of data points, students did not show distinct learning preferences for Activist/Reflector and Sequential/Global dimensions as displayed by the narrow dispersion of data or overlapping notches in the box plots in Figure 2:

Figure 2: Box plots for Activist/Reflector and Sequential/Global dimensions



However, moderate variability or minor skewness was observed in the box plots for Sensing/Intuitive and Visual/Verbal dimensions (Figure 3) indicating a slight preference for Sensing and Visual learning styles as represented by the higher medians respectively:

Figure 3: Box plots for Sensing/Intuitive and Visual/Verbal dimensions



Next, when comparing gender and admit type student profiles, no obvious differences worthy of further investigation were revealed between box plots of the respective learning style dimensions (Appendices 8 & 9).

Examination of the quantitative data from the second survey on the effectiveness of the six learning activities provided the descriptive statistics in Table 3. Indication from the mean scores revealed students found Quick Checks (M = 6.23; SD = 1.09), Seminar Materials (M = 6.11; SD = 1.19) and Homework (M = 6.04; SD = 1.03) to be the most effective while the Online Discussion Forum (M = 3.69; SD = 1.75) was perceived the least efficient for them despite the notable number of threads, replies and reads.

Table 3: Mean scores and standard deviation from Survey 2

Variable	N	Mean	Std Dev	Min	Max
Quick Checks	124	6.234	1.090	3	7
Online Discussion Forum	124	3.685	1.750	1	7
Video and Group Activities on real life cases	124	4.347	1.572	1	7
Group Project	124	4.847	1.557	1	7
Homework and Quizzes	124	6.040	1.031	3	7
Seminar Materials	124	6.113	1.191	2	7

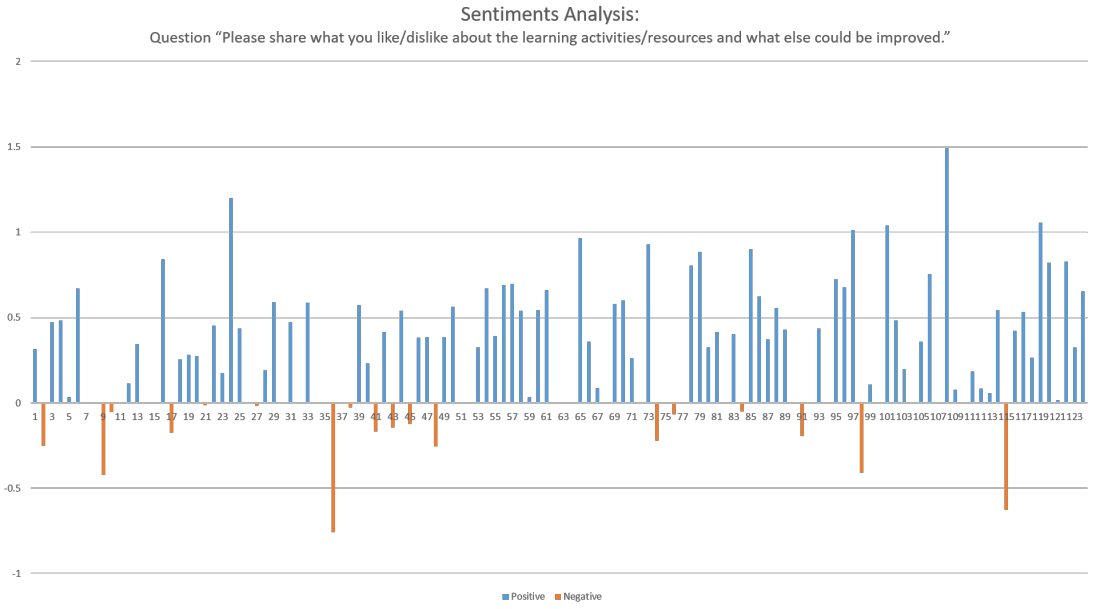
Next, the correlation analysis in Table 4 showed no statistically significant correlation between learning style preferences and the students' preferred choices of learning activities:

Table 4: Correlation table

	Activist	Reflector	Sensing	Intuitive	Visual	Verbal	Sequential	Global
MEAN	4.855	6.145	7.298	3.702	7.831	3.169	6.782	4.218
STD	2.035	2.035	2.375	2.375	2.148	2.148	2.211	2.211
N	124	124	124	124	124	124	124	124
Quick Checks	-0.098	0.098	0.073	-0.073	-0.032	0.032	-0.023	0.023
Online Discussion Forum	-0.052	0.052	0.124	-0.124	-0.125	0.125	-0.001	0.001
Video Group Activities	-0.037	0.037	0.003	-0.003	-0.086	0.086	-0.161	0.161
Group Projects	-0.092	0.092	-0.089	0.089	-0.166	0.166	-0.118	0.118
Homework & Quizzes	0.065	-0.065	0.048	-0.048	-0.041	0.041	-0.053	0.053
Seminar Materials	-0.064	0.064	0.017	-0.017	-0.005	0.005	0.040	-0.040

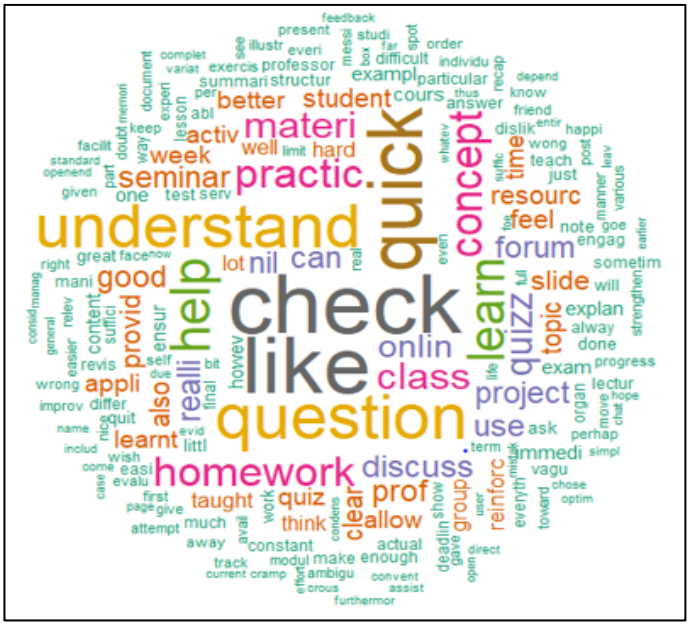
To assay factors that might influence students' ranking of effectiveness of the learning activities, the qualitative data from the open-ended question in the second survey was investigated. When a sentiment analysis of the qualitative comments was run on R (Figure 4), the sentiments were predominantly positive:

Figure 4: Sentiment analysis



Furthermore, words articulated in the feedback were scrutinised and responses represented in a word cloud (Figure 5). Observation from the frequency of the words penned showed that students liked learning activities that helped them verify the understanding of concepts:

Figure 5: Word cloud



Most of the positive comments pertained to Quick Checks. Students liked Quick Checks for the immediacy of knowing right from wrong and as markers of their progress. The verbatim responses were:

> I like the quick checks because it gives students a chance to test their understanding on the spot and will not leave the class thinking they know it and then not actually knowing it.
>
> It reinforces what I learnt right away and allows me to clarify my doubts immediately.
>
> It allowed me to track my progress during class and see what I did or did not understand.

Also, Quick Checks served the purpose of reinforcement of course materials and a useful resource for examination revision:

> Helped me reiterate the concepts learned in class and helped me see the lecture material in a much more understandable manner.
>
> Very useful to evaluate my understanding after every topic is taught.
>
> Serves as a good recap when studying for exams.

Suggestions to improve Quick Checks, such as having a greater variety of questions and ensuring similarity of level as examination questions, were readily dispensed:

> Quick checks can have more variation in terms of the questions so that students can have more exposure to the different questions and help them to better understand the concept.
>
> Quick checks were very good to help me facilitate my learning. However, it should be more difficult and be around the same standard as exams.

With regard to Seminar Materials, the second ranked most effective active learning activity, the comments reflected the Visual and Sensing learning dimensions. The affirmation of the Seminar Materials displayed students' tribute to visual and factual clarity resulting in ease of learning:

> I like that the seminar slides and illustrations are very clear.
>
> Seminar materials are very concise and structured well.
>
> I liked the seminar materials. They helped to reinforce the concepts learnt.

Concerning Homework, the third ranked most effective active learning activity, the students welcomed even more questions to aid recognition and recall. They were familiar with the benefits of Homework perhaps because they were products of Singapore's reputed school system where students devoted many hours to additional schoolwork completed out of classes and at home. Their pragmatism and equal emphasis on form and function of the learning activity were stated plainly:

> The homework serve as additional practice which was very helpful.
>
> The homework and quizzes also help me in revising the topics we have learned in class.
>
> The quick check, homework and seminar materials are of varying difficulty and can help with progressive learning.
>
> Perhaps the homework questions and quick checks can have more variation in terms of the questions so that students can have more exposure to the different questions and help them to better understand the concept.

On the other hand, the negative comments referred to the Online Discussion Forum and Group Project mainly. Some students appreciated the timeliness of the instructor in responding to questions and facilitating discussions. Many were unable to see the Online Discussion Forum as an effective contributor to their learning. There were several reasons: preference for face-to-face consultation with the facilitator or interpersonal discussion with peers; lack of confidence in their intellectual abilities as authors of posts were easily identified; harsh assessment of self-concept due to the fear of not meeting expectations of self and others; and the user friendliness of the learning management system where the tool resided. The supporting quotes were:

> I do not have the habit to ask questions on the discussion forum nor looking at the forum constantly as I always chose to ask my friends or seniors first!

> I didn't really use the online discussion forum as I am afraid that my questions were too silly.
>
> Online discussion forum, it is not user friendly at all, should have just make it into some chat box format so that it is easier for students to discuss.
>
> Online discussion forum was a bit overwhelming and messy. Perhaps a thread naming convention should be introduced e.g. Qn no. (for self prac) or Qn in full/Pertinent keywords of qn (for online quizzes under quiz 2).

As for the Group Project, the majority were dissatisfied with the perceived length, complexity, duration, effort and team. A few found collaborating in a group and applying concepts to a real life scenario practical and useful as the learning experience enhanced workplace readiness. The challenges were cited in their feedback:

> The group project is too open-ended and difficult.
>
> I feel that the group project took quite a lot of time to do and I did not really gain a lot from the group project so this is the part that I do not really like.
>
> The project cannot really be shared and done among team members.
>
> The project is entirely irrelevant as it takes more than 8 hours per individual and does not help to strengthen the concepts. This is in comparison to other modules. Furthermore, having a peer evaluation instead of project quiz in week 13 will suffice as week 13 is rather late due to it being close to finals. This might affect the project submissions.

In summary, the findings showed no significant learning style preferences among the MA students despite gender and admission types even though there was a very modest skew towards Sensing and Visual learning dimensions. The qualitative data supported students' preferred active learning activities namely Quick Checks, Seminar Materials and Homework while the Online Discussion Forum and Group Project were perceived less positively.

Discussion

Students viewed the active learning activities effective if the pedagogy led to primarily their ability to perform well in examinations and secondarily the development of skills for employability. Hence, individual learning style preferences mattered little as long as the learning activities served the utilitarian purpose of academic performance and personal achievement. Consistent with Riley and Ward (2017) who found prior research on active learning inconclusive regarding the effect of gender, our study did not find gender affecting learning style preferences considerably even though a slight orientation towards Sensing and Visual learning dimensions was perceived.

The six active learning activities were designed to develop disciplinary knowledge and assess multi-disciplinary skills and abilities formatively and summatively. They were constructed to develop students holistically during the course, tapping on the domains of cognitive, affective and to some extent psychomotor learning competencies while preparing them for the industry. Since the activities invoked and accommodated a variety of learning styles, they were not inclined to advantage students with any specific learning style preference that would impact performance or grades.

In active learning, the student is the critical stakeholder in the learning process, and "active learning, done well, improves student motivation" (Bonwell, 1999, p. 549). Active learning activities that enabled learning by doing allowed time for students to digest and reflect. The mix of visual and verbal instructions and timely feedback in Quick Checks and Homework led to increased student learning and developed them further for enhanced knowledge and skill acquisition during the course.

However, carefully tailored learning activities and platforms using the jigsaw strategy such as Group Project and Online Discussion Forum, deemed important to strengthen specific employability skills such as communication, collaboration, teamwork, problem solving and critical thinking, were not ranked highly. The structured Group Project with a 20% weighting was aimed at developing people skills and stretching students to manage uncertainties. The assessment concentrated on using budgeting as a management tool and preparing capital budgeting to decide on investing in a project. Perhaps, it was a mistake to think that assigning students the mission in groups would automatically lead to the aforementioned outcomes. Moving forward, the Group Project will be composed with a more defined scope and difficulty commensurate with students' expected level of proficiencies. In class, the instructor will accentuate MA theories and principles by correlating with current industry practices for students to realise immediate professional relevance, as well as to evoke curiosity and augment comprehension. A peer evaluation centred on emotional intelligence, situational awareness and conflict resolution will help students improve self-awareness leading to smoother collaboration among team members and achievement of shared goals.

The researchers feel that the Online Discussion Forum should be continued as an active learning activity in MA despite the adverse and counterintuitive feedback but with some fine-tuning. The threaded and regulated Online Discussion Forum provided the arena for collaborative learning. The intention of extending learning beyond the classroom to an online environment of peer learning, information sharing, interaction and debate was somewhat underachieved because of personal factors, group dynamics and learning management system challenges. While the last was inevitable because a university wide application had to be adopted, the instructor will improve instructions, threading of topics and segmenting contents. Students will be introduced to 'Netiquette' guidelines on scholarliness, respect, professionalism and civility. They will be encouraged to practise organisation by subject field/title/sub-head that will state the key point and inspired to be constructive by positively acknowledging one another in the form of badges.

Finally, the findings substantiate students' propensity towards individual active learning activities rather than in a group and their perception that outcomes achieved in the shortest time and least effort were most effective and desirable. The MA

students, not exhibiting distinct learning style preferences, seem balanced and appear adaptable to respond successfully to the active learning environment focused on student centricity, usage of mixed instructional facilitation strategies and diverse course materials that appealed to a range of learning dimensions.

Further research

The study can be replicated in future academic intakes for reliability and validity. The qualitative investigation may be strengthened by including more open-ended questions and broadened by holding focus groups to probe into students' beliefs and attitudes about active learning and its resultant outcomes. While the population of International Baccalaureate and international students in the Others admissions category is small in the current study, the number has been steadily increasing over the past four intakes and is likely to increase in the future because of the declining birth rate in Singapore. Therefore, there may be greater variation in learning style preferences in this group as compared to Junior College/GCE A-level and Polytechnic students.

Conclusion

In the study, the sole instructor embraced the active learning style approach by designing and administering varied active learning activities that demanded more endeavour (constant facilitation, intervention and supervision) and resources (time) to achieve the learning outcomes. The active learning curriculum of MA, comprising activities of multi teaching and learning approaches and facilitation styles seemed to have succeeded in helping students learn formatively. While the sample did not exhibit significant learning style preferences in the ILS survey, the ratings and comments of the active learning activities in the second survey were distinctive. Overall, students were positive about most active learning methods, appreciated the enhanced learning experience and generally satisfied with the outcomes. The majority liked Quick Checks most, attesting to the practical nature of students, directed in their individual learning to do what was most effective and efficient to perform well. In contrast, their less positive qualitative comments on Group Project, a complex case with open-ended questions requiring analysis and decision-making, raised a concern on whether students were over emphasising short-term results at the expense of long-term employability development. This is especially since the mission of accounting education is to prepare students to become professional accountants based on lifelong learning built on the three components of skills, knowledge and professional orientation (Hobson, 2002).

Acknowledgements

The authors would like to thank Professor Richard M. Felder and Professor Barbara A. Soloman for the use of the Felder and Soloman Index of Learning Styles (ILS) Questionnaire and the students from the SMU MA classes for their participation. In addition, we would like to acknowledge Wee Tian Lu for her assistance in the statistical analyses.

Note

The students' quotations have been largely unedited.

References

Alkhasawneh, I. M., Mrayyan, M. T., Docherty, C., Alashram, S., & Yousef, H. Y. (2008). Problem-based learning (PBL): Assessing students' learning preferences using vark. *Nurse Education Today*, *28*(5), 572–579. Retrieved from https://doi.org/10.1016/j.nedt.2007.09.012

Bonwell, C. C. (1999). Using active learning to enhance lectures. *Review of Agricultural Economics*, *21*(2), 542–550.

Boström, L. & Lassen, L. M. (2006). Unraveling learning, learning styles, learning strategies and meta - cognition. *Education + Training, 48(2/3)*, 178–189. Retrieved from https://doi.org/10.1108/00400910610651809

De Vita, G. (2001). Learning styles, culture and inclusive instruction in the multicultural classroom: A business and management perspective. *Innovations in Education and Teaching International, 38(2),* 165–174. Retrieved from https://doi.org/10.1080/1470329011003543

Dunn, R., Griggs, S. A., Olson, J., Beasley, M., & Gorman, B. S. (1995). A meta-analytic validation of the Dunn and Dunn model of learning-style preferences. *The Journal of Educational Research, 88(6),* 353–362.

Faust, J. L., & Paulson, D. R. (1998). Active learning in the college classroom. *Journal on Excellence in College Teaching, 9(2),* 3–24. Retrieved from https://doi.org/10.5926/arepj1962.47.0

Felder, R. M., & Silverman, L. K. (1988). Learning and teaching styles in engineering education. *Engineering Education, 78(June)*, 674–681. Retrieved from https://doi.org/10.1109/FIE.2008.4720326

Felder, R. M., & Spurlin, J. (2005). Applications, reliability and validity of the Index of Learning Styles. *International Journal of Engineering Education, 21(1),* 103–112. Retrieved from https://doi.org/0949/-149X/91

Hobson, E. (2002). *Active learning toolkit*. Sarasota, Florida, USA: American Accounting Association.

Honey, P. (1988). Styles of learning. In A. Mumford (Ed.), *Gower Handbook of Management Development Fourth Edition* (pp 101-111). UK: Gower Publishing Limited.

Hosford, C. C., & Siders, W. A. (2010). Felder-Soloman's Index of Learning Styles: Internal consistency, temporal stability, and factor structure. *Teaching and Learning in Medicine, 22(4)*, 298–303. Retrieved from https://doi.org/10.1080/10401334.2010.512832

Keefe, J. W. (1985). Assessment of learning style variables: The NASSP Task Force Model. *Theory Into Practice*, 24(2), 138–144.

Kolb, A. Y., & Kolb, D. A. (2005). Learning styles and learning spaces: Enhancing experiential learning in higher education. *Academy of Management Learning & Education, 4(2),* 193–212. Retrieved from https://doi.org/10.5465/AMLE.2005.17268566

Kolb, D. A. (1999). *The Kolb Learning Style Inventory Version 3*. HayGroup, Boston, MA 02116.

Larsen, J., McCright, P. R., & Weisenborn, G. (2004). Coordinating sensory modality in learning styles and teaching styles in undergraduate engineering education. In *IIE Annual Conference. Proceedings, 1–5.* Retrieved from http://search.proquest.com/docview/192469368?accountid=38628

Lawrence, J. (1994). Action learning - a questioning approach. In A. Mumford (Ed.), *Gower Handbook of Management Development Fourth Edition* (pp. 209-257). Gower Publishing Limited.

Mitchell, L. (2002). *Active learning and reflection*. Retrieved from http://hca.ltsn.ac.uk/

Park, H. (2005). Design and development of a mobile learning management system adaptive to learning style of students. In *Wireless and Mobile Technologies in Education Conference Proceedings*, (pp. 4–6). Retrieved from https://doi.org/10.1109/WMTE.2005.14

Platsidou, M., & Metallidou, P. (2009). Validity and reliability issues of two learning style inventories in a Greek sample: Kolb's Learning Style Inventory and Felder & Soloman's Index of Learning Styles. *International Journal of Teaching and Learning in Higher Education, 20(3)*, 324–335.

Riley, J., & Ward, K. (2017). Active learning, cooperative active learning, and passive learning methods in an accounting information systems course. *Issues in Accounting Education*, *32*(2), 1–16. Retrieved from https://doi.org/10.2308/iace-51366

Sandman, T. E. (2014). A preliminary investigation into the adaptive learning styles of business students. *Decision Sciences Journal of Innovative Education, 12(1),* 33–54. Retrieved from https://doi.org/10.1111/dsji.12020

Silberman, M. (1996). *Active learning -101 strategies to teach any subject*. USA: Allyn and Bacon.

Smith, J. (2002). Learning styles: Fashion fad or lever for change? The application of learning style theory to inclusive curriculum delivery. *Innovations in Education and Teaching International, 39(1),* 63–70. Retrieved from https://doi.org/10.1080/1355800011010291

Van Zwanenberg, N., Wilkinson, L. J., & Anderson, A. (2000). Felder and Silverman's Index of Learning Styles and Honey and Mumford's Learning Styles Questionnaire: How do they compare and do they predict academic performance?

Educational Psychology, 20(3), 365–380. Retrieved from https://doi.org/10.1080/713663743

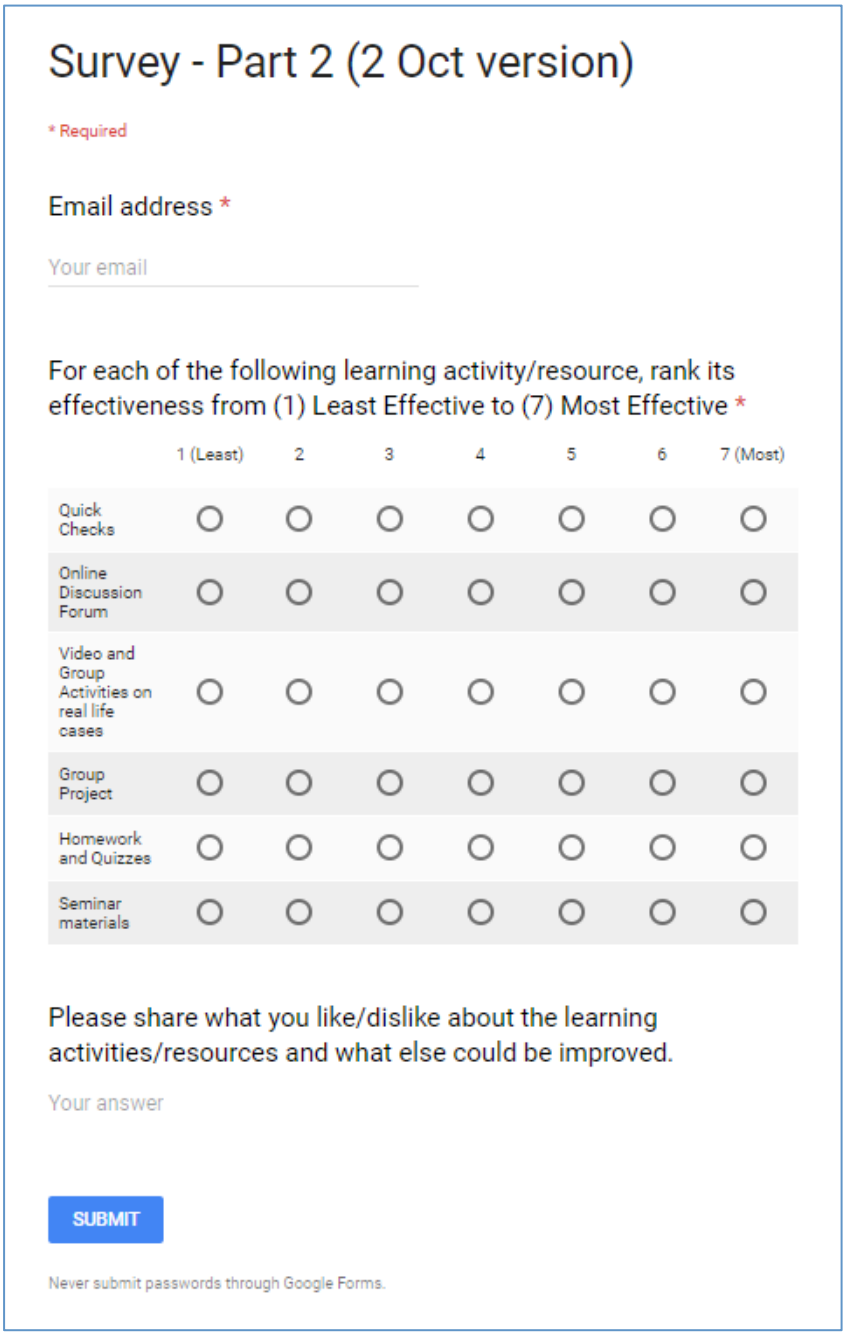
Visser, S., Vreken, N., & McChlery, S. (2006). Teaching styles versus learning styles in the accounting sciences in the United Kingdom and South Africa: A comparative analysis. *Meditari Accountancy Research, 14(2)*, 97–112.

Contact email: spwong@smu.edu.sg
angelakoh@smu.edu.sg

Appendices

Appendix 1

Survey 2: Questionnaire designed by researchers for students



Survey - Part 2 (2 Oct version)

* Required

Email address *

Your email

For each of the following learning activity/resource, rank its effectiveness from (1) Least Effective to (7) Most Effective *

	1 (Least)	2	3	4	5	6	7 (Most)
Quick Checks	○	○	○	○	○	○	○
Online Discussion Forum	○	○	○	○	○	○	○
Video and Group Activities on real life cases	○	○	○	○	○	○	○
Group Project	○	○	○	○	○	○	○
Homework and Quizzes	○	○	○	○	○	○	○
Seminar materials	○	○	○	○	○	○	○

Please share what you like/dislike about the learning activities/resources and what else could be improved.

Your answer

SUBMIT

Never submit passwords through Google Forms.

Appendix 2

Quick Checks

Quick Checks were short exercises for the students to practise concepts or methods taught. They were given to students after completion of a key learning objective before progressing to the next part of the lesson in class. The breaks during the lesson delivery allowed students to review the concepts and do a quick self-assessment of their understanding by practical application. Doing the brief exercises gave students the assurance that they had understood the concepts. At the same time, they enabled students to identify gaps in their understanding and to seek immediate clarification from the instructor. Students might work on the problems on their own or in discussion with their peers. They were stimulated to learn as they were kept engaged through individual effort or teamwork. After completing the exercises, the instructor summarised the key learning points and explained how they fitted into the big picture of management accounting. Students were also encouraged to share alternative approaches and answers, where applicable.

Examples of *Quick Checks*

Example 1: This exercise aims to ensure students understand cost concepts before they progress to learn how to determine the cost of a product. After the exercise, we will discuss the impact of a wrong classification on the product cost and other consequences.

Which of the following is the best classification of the cost of the toys in the Kinder Joy?

A)	Period cost	Variable
B)	Period cost	Fixed
C)	Direct material	Variable
D)	Manufacturing overhead	Fixed
E)	Manufacturing overhead	Variable

Example 2: This exercise guides the students to use the two main methods to allocate costs. The students could see the impact of the two methods on cost measurement by doing the exercise.

RGB Ltd uses **normal costing**. Use the given production data to answer Q1 and Q2.

	Product P	Product Q
Total Budgeted Manu Overheads	$1,200,000	
Total Expected Production Quantity	5,000 units	200 units
*Batch Size (no. of units per batch)	200 units	40 units
*Direct Material Costs	$50 per unit	$90 per unit
*Direct Labour Hour	$40 per unit	$250 per unit
Total Actual Production Quantity	5,200 units	190 units
Total Actual Manufacturing Overheads	$1,500,000	

**assume actual = budget*

Q1) **Traditional costing**: RGB allocates overhead using a **plantwide rate** with cost of direct labour (DL$) as the cost allocation base.

POR =

Applied OH (Product P) =
Applied OH (Product Q) =

Q2) **Activity-Based Costing (ABC)**: RGB found that 70% of the total manufacturing OH are driven by batches and 30% by DL$.

(a)

Activity	Bgt OH $	Cost allocation base	Activity rate
Driven by batches			
Driven by DL$			

(b) Compute the Total Applied Overhead for Product Q using ABC:

	Product P	Product Q
Total Actual Production Quantity		
Batch Size (no. of units per batch)		
Actual number of batches		
Activity rate (driven by batches)		
Applied OH (driven by no. of batches)		
Actual DL$ per unit		
Total Actual DL$		
Activity rate (driven by DL$)		
Applied OH (driven by DL$)		
Total Applied OH		

Appendix 3

Homework

Take-home assignments were given after students had understood a topic. They consisted of short cases with challenges that assessed students' ability to connect concepts taught across different topics, integrate theories and apply principles. After attempting the assignment on their own, students would work in teams to present their solutions. During the presentations, students shared their thought processes used to solve the problems. Common mistakes, alternative approaches and other situations where the concepts could be applied were too discussed.

Appendix 4

Seminar Materials

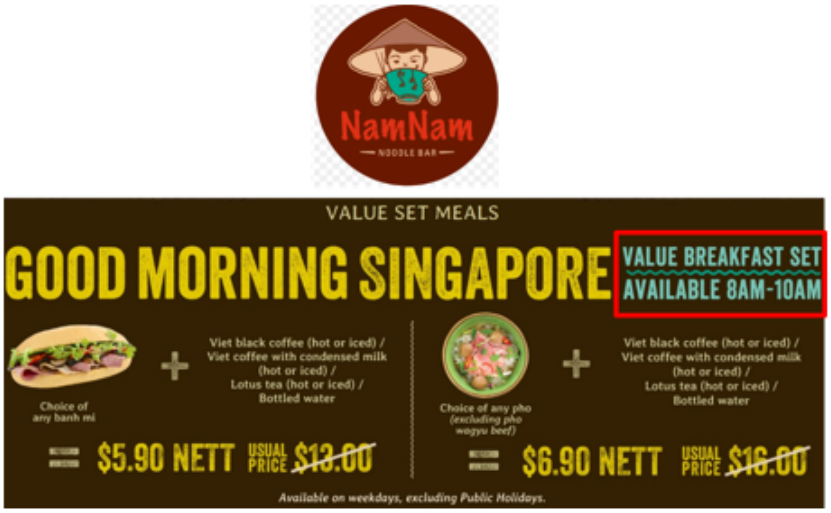
Classes were conducted in a small class size of about forty students each. Materials were uploaded to the learning management system before the class for students to prepare themselves before face-to-face contact with the facilitator. The materials comprised PowerPoint slides that provided the 'big picture' of the topic to be taught and more detailed slides that systematically presented the materials to achieve the learning objectives. The slides used a combination of text, pictures and diagrams. At appropriate intervals, slides that presented questions to trigger deep thinking and stimulate discussion during the class were introduced.

Example 1: Use of picture to explain degree of operating leverage

Load represents the objective of maximising profit
Effort represents the sales required to achieve the profit
Lever represents operating leverage

The picture visualises the concept of operating leverage (DOL) – high DOL (lever) enables a small percentage increase in sales (effort) to produce a much larger percentage increase in operating income (load).

Example 2: Question to trigger thinking and application



Why is promotional price applicable only for breakfast? (application of concepts of fixed cost behaviour and excess capacity)
Why is the breakfast promotion price lower than the regular price? (application of concepts of positive contribution margin and breakeven analysis)

Appendix 5

Video and Group Activities on real life cases

Videos and current news events were introduced to bring the real world into the classroom. Students worked in groups to discuss the issues and shared their answers using Google slides.

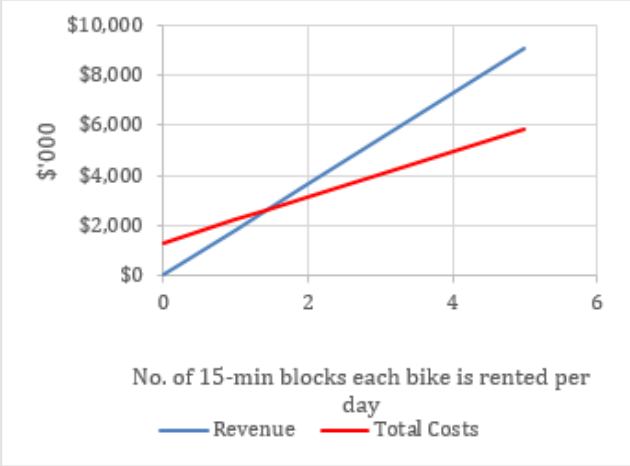
https://www.channelnewsasia.com/news/business/is-dockless-bike-sharing-doomed-to-fail-in-singapore-10505662

Singapore
Jan 2017: Started
Jun 2018: Exit

Hong Kong
April 2017: Started
Jul 2018: Exit

Only 5 Out Of 8 Bike-Sharing Firms Remain In S'pore - How Many Will Finish The Race?

Is bike-sharing business model viable?



The graphs immediately show the impact on revenue and costs when students make changes to key variables like volume of bikes, rental charge, number of staff, cost of the bikes and other cost assumptions. The dynamic presentation provides a visual experience of the practical application of theories.

Appendix 6

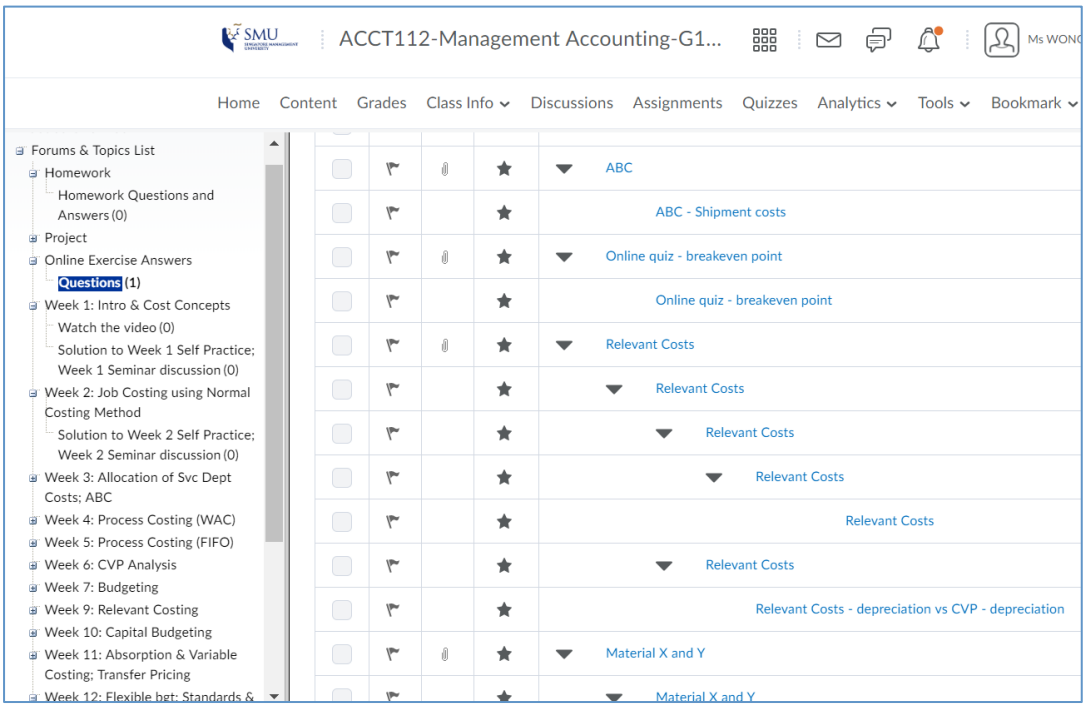
Group Project

Towards the end of the course, students worked in teams on a business case project. The project aimed to test the ability of the students to work independently and as a team, to solve a business problem by integrating and applying the knowledge acquired during the course. To simulate real life decision-making, the case was deliberately written with incomplete information and some ambiguity. There was no one right answer. The students learnt to assess given information and had to be resourceful in dealing with uncertainties. Doing the project taught the students to analyze, synthesize and evaluate financial and other related information for decision-making. Through the written report, students learnt to communicate effectively in a simulated business context.

Appendix 7

Online Discussion Forum

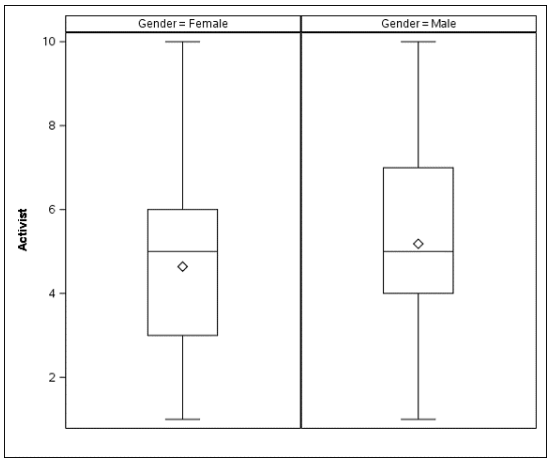
At the beginning of the course, the online discussion forum was set up to facilitate collaborative learning. Students could reflect on the contents covered in class to post questions and comments in the online discussion forum asynchronously. Responses to questions encouraged peer-to-peer learning. The instructor monitored the forum regularly to facilitate discussion. The students participated actively. At the end of the course, there were a significant total of 212 threads, 307 replies and 14,173 reads.

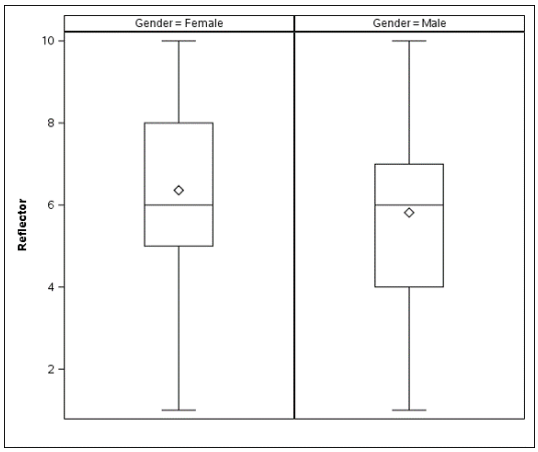


Appendix 8

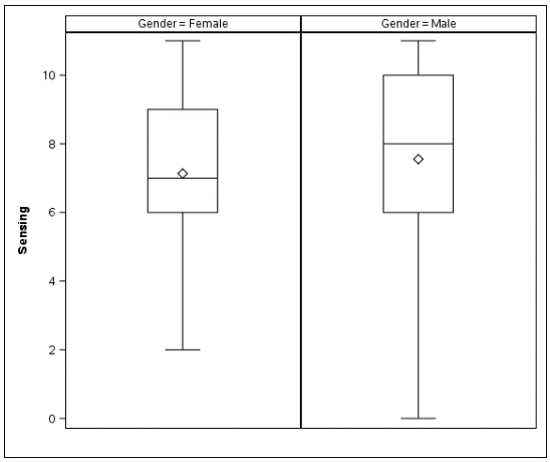
Distribution by gender

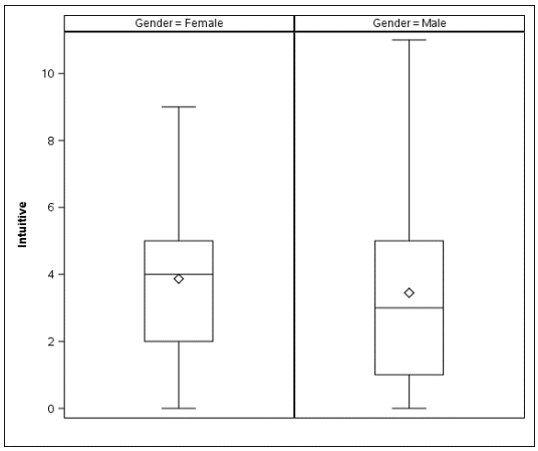
Activist-Reflector



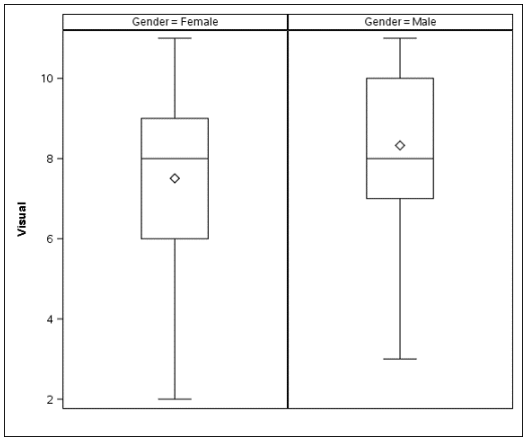


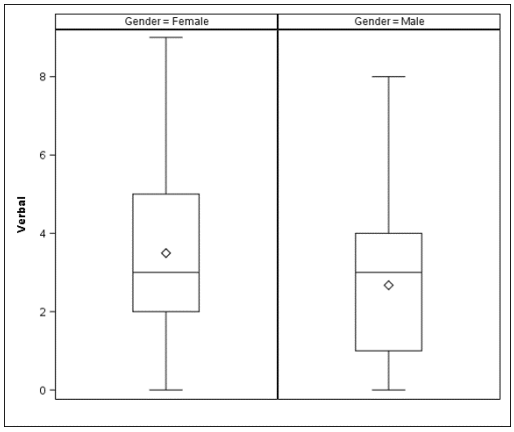
Sensing-Intuitive



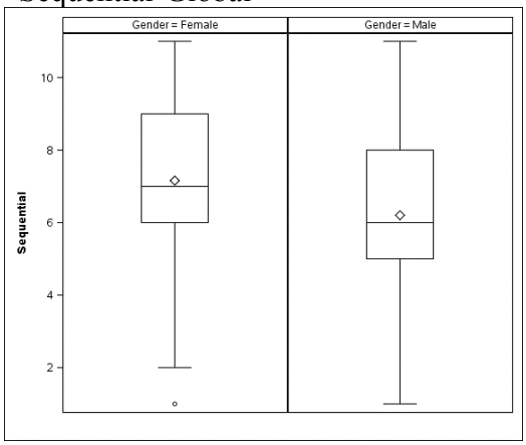


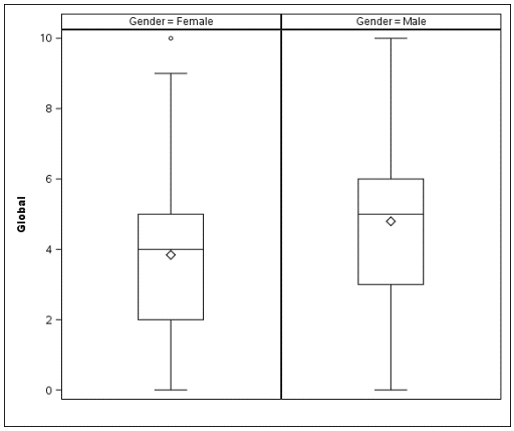
Visual-Verbal





Sequential-Global

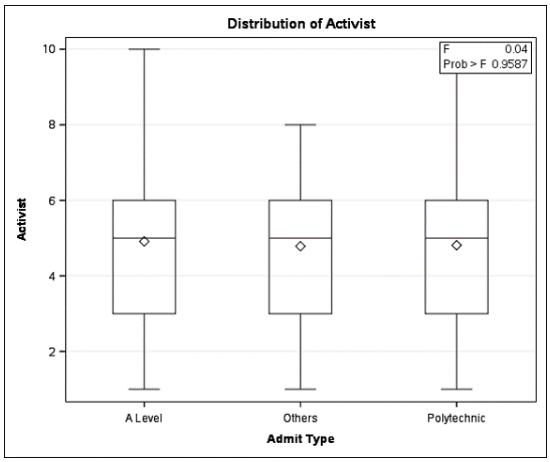


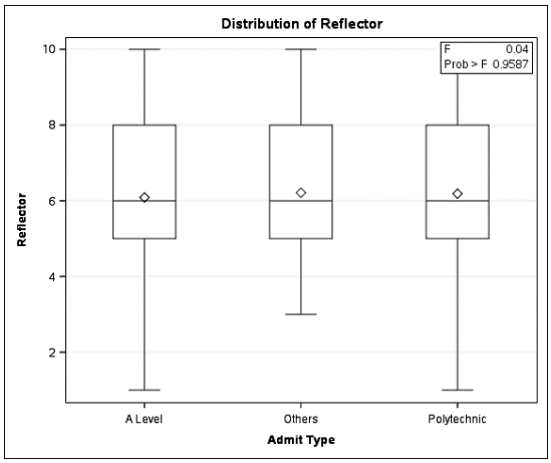


Appendix 9

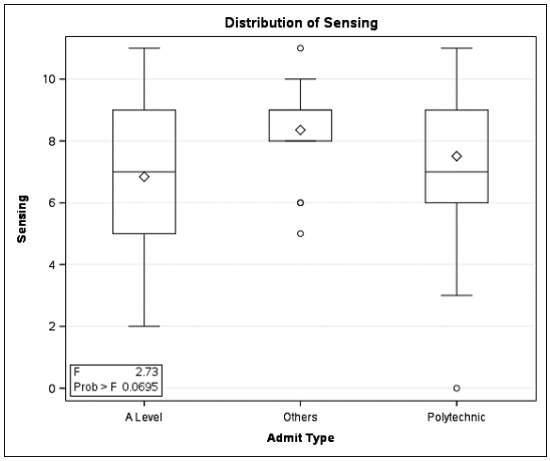
Distribution by admit types

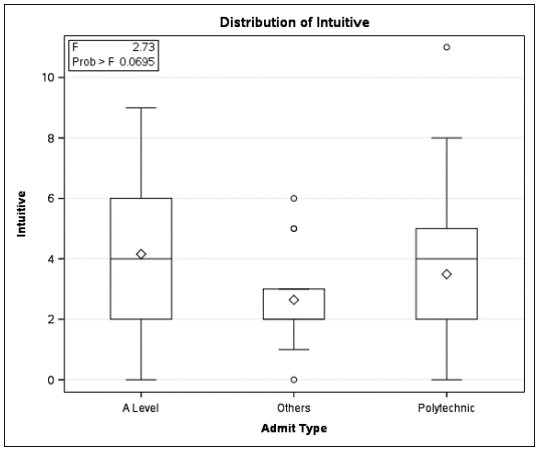
Activist-Reflector



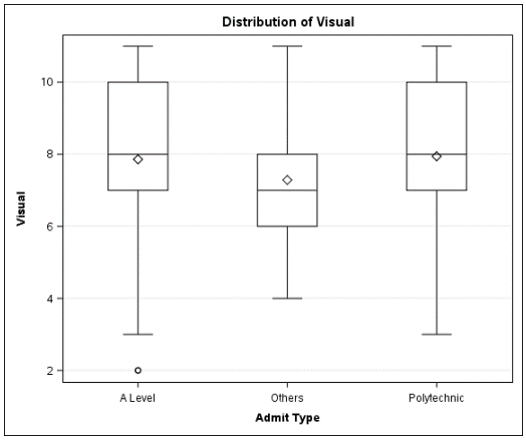


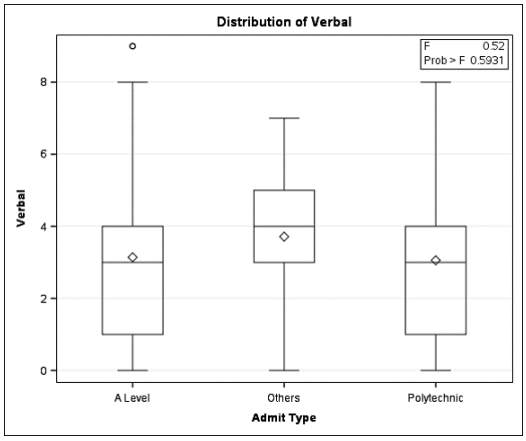
Sensing-Intuitive



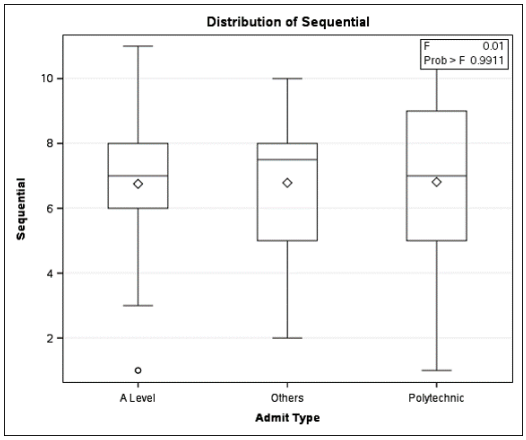


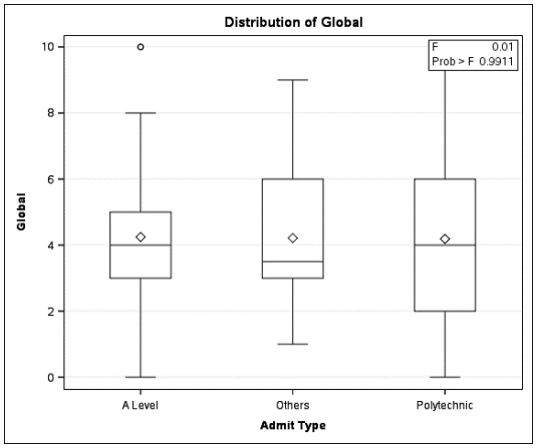
Visual-Verbal





Sequential-Global





English Language Students' Perceptions of Interchanged Application of Face-to-face and Synchronous Virtual Classrooms

Phanupong Thumnong, Khon Kaen University, Thailand

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract
Recent research has suggested that synchronous virtual classrooms can equally or, in some cases, better enhance students' learning experience compared to the traditional face-to-face instruction. However, little has been explored within the circumstances where both of the instructional modes are applied to the same group of students. This study thus investigates students' perceptions of interchanged application of synchronous virtual classrooms via the software Zoom and the face-to-face instruction in an English Pronunciation course. The data were collected by semi-structured individual interviews with 10 university students. The qualitative content analysis using coding schemes adopted from Community of Inquiry (CoI) framework was conducted. The overall findings revealed that students have positive perceptions of learning through exchanged application of the two instructional modes, but some concerns arise when the perceptions specifically based on each of the three presences are taken into account.

Keywords: distance learning, internet-based learning, English language teaching, blended classrooms, hybrid classrooms

iafor
The International Academic Forum
www.iafor.org

Introduction

Rapid development of the Internet has made online education no longer new to the higher education context. Educational institutes across the globe consider this instructional mode highly promising, since it can attract students in remote areas and thus compensates for the currently decreasing number of on-site student enrollments (Dumont & Raggo, 2018; McPherson & Noelting, 2018). As a consequence, a wide range of internet-assisted or -based courses have been developed. Some blend the learning management system (LMS), e.g. Canvas, Edmodo, or Google Classroom, with the traditional instruction to enhance students' learning experience as the concept of 'blended learning' (Dash, 2019; Philipose & Rajagopal, 2019). Many courses fall into 'distance education', relying on fully online instruction in which all interaction between instructors and students are done, whether synchronously or asynchronously, on the Internet (Berry, 2018; Blaine, 2019).

According to Dumont and Raggo (2018), online instruction can be delivered by three different modes: asynchronous, hybrid, and synchronous. The asynchronous online instruction involves on-demand courses in which students do not regularly have on-site classrooms with their instructors but individually learn the content or engage in any activities already provided in the cloud-based LMS at their own convenient time, implying that the interaction between the instructors and students is isolated by space and time (Blaine, 2019). With the hybrid online instruction, instructors and students simultaneously have internet-based classrooms via a specific online platform at a specified time, but some activities, such as individual or group assignments, are conducted asynchronously with the results later presented onto the LMS. Lastly, the synchronous online instruction or 'synchronous virtual classrooms' involve completely real-time communication in which instructors and students do all activities, including lectures, group work, questions and answers, etc., synchronously at the designated internet-based platform (Martin, Parker & Deale, 2012). Of the three instructional modes, the synchronous online instruction demands the most technology in the sense that all participants are required to have a high-speed Internet connection as well as a camera and a headset with a microphone so that both visual and auditory information occurring in the classrooms is delivered in a manner comparable to the traditional classroom experience (Dumont & Raggo, 2018).

Research on synchronous virtual classrooms has suggested that this instructional mode can provide students with equivalent learning experience and outcomes compared to the traditional settings. Ngo (2019), for example, found that students learning through an application of synchronous online classroom as a supplement to the traditional mode showed the consistent improvement of all the four English language skills, compared to those learning through the traditionally delivered instruction alone. Furthermore, concurrent verbal communication and the live screen sharing feature in synchronous virtual classrooms have been proven to establish real-time interaction, both student-instructor and student-student, in the same sense as face-to-face encounters (Martin et al., 2012; Teng, Chen, Kinshuk & Leo, 2012). It is essential to note that immediate interaction is responsible for establishing a "sense of belonging to a learning community", which plays a vital role in promoting students' motivation and collaboration, and thus contributes to the desired learning achievement (Falloon, 2011; Garrison & Anderson, 2003; Gedera, 2014). These satisfactory implications can be concluded that synchronous virtual classrooms can substitute the

traditional instructional delivery (Barbosa & Barbosa, 2019; Dharma, Asmarani & Dewi, 2017).

The majority of previous studies on synchronous virtual classrooms emphasized the experience and outcomes of students who enrolled in complete 'distance learning' courses particularly designed for online educational purposes, while little attention has been paid to the application of this instructional mode as a temporary or even complete substitution for the traditional face-to-face instruction in a campus. The closest practice can be seen from the mixed-mode instruction called 'synchronous hybrid virtual classroom', comprising two groups of students, i.e. one on campus and the other online, participating in the same course at the same time (Raes, Vanneste, Pieters, Windey, Noortgate & Depaepe, 2020; Szeto, 2014). However, one should not ignore the fact that on-site classrooms themselves can be occasionally interrupted by several unexpected circumstances. Zevenbergen, Sigler, Duerre and Howse (2000), for instance, reported that heavy flood in the United States caused educational institutes in the affected area to suspend their classes for a long period of time. Power failure can also bring classes that heavily rely on electronic devices to a halt. Other factors such as civil unrest or a lack of rooms due to remodelling efforts at the campus can as well lead to class cancellation or postponement, which greatly affects the lesson plans or whole curricula of the affected academic year (Barbosa & Barbosa, 2019).

Taking the foregoing circumstances into account, it is worth exploring the feasibility of applying synchronous virtual classrooms as a substitution for the traditionally delivered instruction in order to seamlessly maintain teaching progress when physical access to classrooms is interrupted. To this end, this study aims to investigate the learning experience of students who are taught through both synchronous virtual classrooms and face-to-face instruction in the same course. The following research question was raised to guide the data collection: what are students' perceptions of the interchanged application of face-to-face and synchronous virtual classrooms?

Community of Inquiry as the theoretical framework

A Community of Inquiry (CoI) broadly refers to a formally constituted group of individuals sharing the same academic focus and collaborating with each other to reach the intended learning goals (Garrison, Anderson & Archer, 2000). The notion of CoI supports "a critical, collaborative learning community" in which independent cognition and interdependent collaboration coincide (Garrison et al., 2003, p.22). To ensure such community, Garrison et al. (2000) suggested that the interrelationships between the three elements including cognitive presence, social presence and teaching presence be established.

According to Garrison et al. (2003, p.28), cognitive presence refers to 'the extent to which learners are able to construct and confirm meaning through sustained reflection and discourse in a critical community'. This presence involves promoting a critical thinking process, in which learners pass through states of puzzlement, information exchange, connection of ideas, creation of concepts, and the testing of validity of solutions (Garrison & Vaughan, 2008, p.22). Social presence is defined as the extent to which learners are able to socially and emotionally engage in the community with their outright personality through the communicative medium being used. With this

presence, learners are able to feel free to express themselves in a risk-free manner, which therefore contributes to their sense of belonging, freedom of expression and cohesiveness in the community. Lastly, teaching presence is responsible for ensuring that cognitive presence and social presence are consistent with intended learning outcomes. Teachers are expected to provide the design, facilitation, and direction for a worthwhile educational experience, in which learners can fully participate in the educational process with a highly interactive succession of learning experiences that lead to the resolution of an issue or problem in their community. As shown in Figure 1, the three elements are inevitably interrelated, and they all together yield a learning community which could contribute to successful education experience.

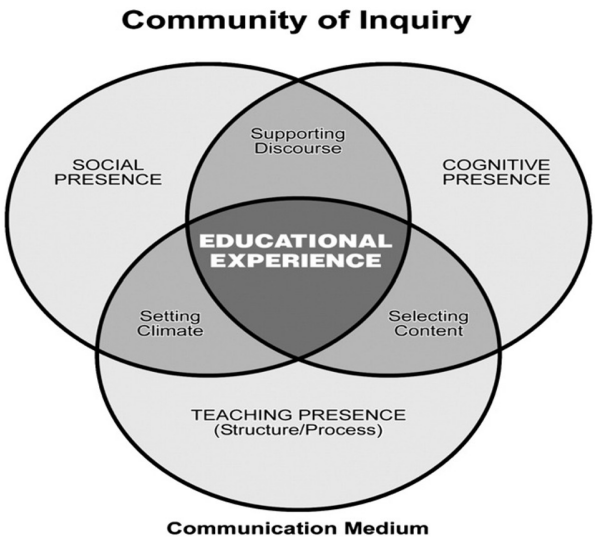


Figure 1: Community of Inquiry Framework (Garrison & Vaughan, 2008, p.18)

Community of Inquiry has been widely adopted in several studies on online or blended education. Szeto (2014), for instance, employed CoI as a preconceived framework to investigate students' and instructors' experiences of blended synchronous learning, in which onsite students and online counterparts were learning the same sessions simultaneously. Blaine (2019) also utilized this notion to examine the perceptions of students and teachers in online and blended Advanced Placement courses. Law, Geng, and Li (2019) explored the links between the three domains of CoI and students' enrollment, motivation and learning performance in a blended learning environment. CoI was adopted in data analysis of the three aforementioned studies to assess the quality or experience of the online/blended learning environment. Taking this into account, the present study adopted CoI as a theoretical lens to investigate students' perception of interchanged application of face-to-face and synchronous virtual classrooms.

Research context

The present study was conducted in an English Pronunciation class taught in a university in Thailand. Thirteen undergraduate students, including two in the third year and eleven in the second year, enrolled at this class as a mandatory course of their English minor program in the first semester of the academic year 2019. The experimental period lasted 8 weeks from August to November. The class met semi-weekly, on Mondays when students were taught via online synchronous virtual instruction and Thursdays when they had a traditional face-to-face class at the campus.

To ensure equivalent instructional procedures for both instructional modes, three variables were controlled throughout the observed duration. Firstly, each period of both modes lasted 90 minutes. Secondly, every period was carried out in the same process, including a 30-minute lecture on new lessons, 30-minute individual pronunciation practice, and 30-minute pair/group in-class assignments. Thirdly, the students were presented with the same types of teaching materials, i.e. the coursebook, audio files, and presentation slides.

The videoconferencing application Zoom was selected as a medium for synchronous virtual instruction. Although there are several choices of software for this instructional mode (e.g. Adobe Connect Virtual Classroom, Canvas or Skype), Zoom was claimed to be the most suitable for conducting a synchronous virtual class since it has several features facilitating instructional activities (Dharma, Asmarani & Dewi, 2017). Its key features, some of which are shown in figure 2, include 1) screen and audio sharing which enables the host to broadcast the visual and audio information shown on his/her device live on those of the participants, 2) live video conference which allows all participants to see and communicate with each other simultaneously through cameras and microphones, 3) chatting in which the host and participants are able to send and receive instant messages to one another whether privately or publicly, 4) breakout rooms allowing the host to split the participants of the meeting in up to 50 separate sessions automatically or manually, and 5) video recording which enables whether the host or participants to record the meeting as both video and audio files so that they can watch the meeting later on their preferred device and time. This software can be installed and used on desktop or laptop computers, mobile phones and tablets. Although Zoom was claimed to be an undemanding application, previous research on synchronous virtual classrooms found that some students had difficulty using unfamiliar software, and their lack of such technical knowledge could lead to negative learning experience (Gedera, 2014; Martin et al., 2012; Ngo, 2019). The students in the present study were thus trained how to use the aforementioned features of Zoom in the first week of the observed period.

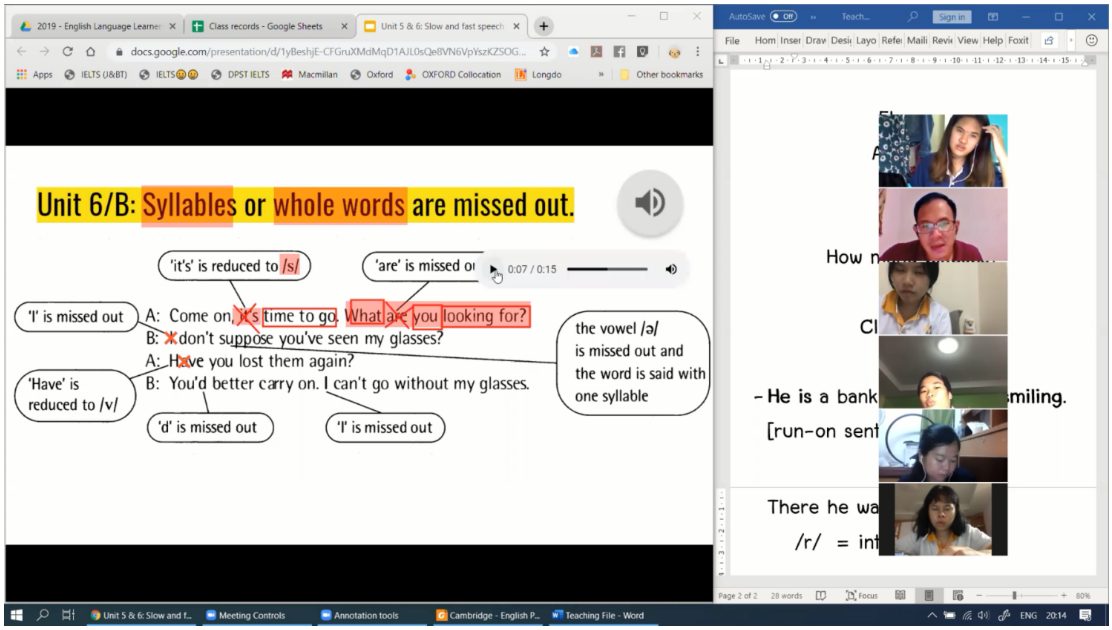


Figure 2: The display of synchronous virtual classrooms via Zoom

Data collection and data analysis

The research instrument was semi-structured individual interviews with 11 students, who granted their consent for the data collection. The interviews were conducted one week after the final week of the experimental period. Every interview was recorded as audio files, which later were imported into the program Atlis.ti, allowing the qualitative data to be analyzed without need for transcription.

The data analysis employed a combined approach of inductive and deductive coding (Drisko & Maschi, 2016). The first step involved data-driven coding in which the author listened to the recorded audios and coded responses meaningfully relevant to the research question, as a free coding process. Afterwards, the coded data were categorized into three themes based on the three presences of Community of Inquiry, as deductive coding. The data in each theme were later summarized in order to generate typology of content allowing the author to compare the participants' perceptions in each presence.

The validity and reliability of the analysis was conducted by cross-checking. Three coders, including the author and two trained qualitative researchers, were responsible for analyzing the response from the same participant, and found 71 percent of agreement, reaching the required percentage of inter-rater reliability (Mayring, as cited in Drisko & Maschi, 2016, p. 107).

Findings and discussion

The students' perceptions of attending synchronous virtual and face-to-face classes interchangeably showed high consistency in terms of cognitive presence but divergence in social presence and teaching presence, as shown in Table 1. The findings concerning each of the three presences were arranged in three columns to separately demonstrate different aspects of perceptions: 1) both synchronous virtual classrooms and face-to-face classrooms are similar, 2) face-to-face classrooms are better than synchronous virtual classrooms, and 3) vice versa. The numbers in parentheses indicate the number of students having the perceptions. The findings are discussed along with extracts from the participants, whose names are presented as pseudonyms.

Dimensions	Both modes are similar	F2F classrooms are better than SVCs	SVCs are better than F2F classrooms
Social presence	- sense of belonging (8) - real-time interaction (6) - student-student interaction (6) - student-lecturer interaction (4) - facial expressions (4)	- student-student interaction (4) - student-lecturer interaction (4) - sense of belonging (2)	- confidence in answering via chatting (7) - interaction with non-intimate classmates (5) - freedom of expressions through breakout rooms (4)

Cognitive presence	- learning effectiveness (10) - practice of knowledge/skills (8) - collaboration in peer/group work (8)	- Physical collaboration (2)	
Teaching presence	- continuity of lessons (10) - Quality of teaching materials (6)	- Immediate transmission of audio/visual information (7)	- Lesson rerun via video recording (9) - Noise cancellation (4) - Screen annotation (3)

Table 1 Student's perceptions based on Community of Inquiry

(F2F stands for 'face-to-face', and SVCs stands for 'synchronous virtual classrooms')
The findings regarding social presence show that the students had varied perceptions of interchangeably learning through the two teaching modes. Eight out of ten students felt that they belonged to the online classes in the same manner as traditional settings, as illustrated in extract 1, while the other two reported they sensed some isolation when they had virtual classrooms (see extract 2). It was also found that immediate transmission of audio and video information in synchronous virtual classrooms allowed the students to have real-time interaction, and the camera-sharing feature also enabled them to see facial expressions of all participants in the class, promoting realistic human contact (Garrison et al., 2003).

Extract 1: "I didn't feel isolated. In Zoom, I could say anything I wanted because the lecturer always kept our microphones on, and when he taught pronunciation of words I myself could repeat those words right away, just like I did in the (actual) classroom."
- Valencia

Extract 2: "Sometimes I felt isolated from other classmates. When I had questions, I didn't know if I could ask amid (online) classes and I didn't want to interrupt the lecturer. I wasn't also able to whisper to anyone, so I had to send messages to my friends instead." - Farah

Although the majority of students agreed that synchronous virtual classrooms and face-to-face instructions could equivalently establish the sense of belonging, the findings vary when interaction is taken into account. Regarding student-lecturer interaction, four students claimed that they had relatively less chance of individually communicating with the lecturer in online classes (see extract 2 and 3) while other four students did not sense any difference in their interaction with the lecturer (see extract 4). In fact, the software Zoom has the feature Raise hand, allowing the participants to catch attention from the host. It was thus possible that the student of extract 3 might illustrate one who was unaware of or unfamiliar with the feature. This seems to conform with the previous literature stating that a lack of technical knowledge or instrumental familiarity could cause students' negative learning experience (Gedera, 2014; Martin et al., 2012; Ngo, 2019).

Extract 3: "In face-to-face classrooms, I could raise my hand when I had questions, but I had little chance to ask the lecturer in online classes." - Bee

Extract 4: "It's so similar. I could raise my hand to ask the lecturer in face-to-face classes, and I also press 'raise-hand' in the app in online classes." - Nut

As for student-student interaction, six students reported they were able to maintain their interaction with classmates in both teaching modes, but some felt they lost certain peer interaction in online classes since they were unable to whisper to their classmates when they had questions or would like to ask their fellow students for clarification of information, as already mentioned in extract 2. However, it is interesting to find out that interaction among non-intimate classmates was relatively better promoted in synchronous virtual classrooms. To clarify, students usually prefer to sit with their close friends in an actual classroom, discouraging them to interact with other individuals. Synchronous virtual classrooms, on the other hand, allowed them to communicate with any individuals regardless of physical locations, thus providing them with more opportunity to interact with non-intimate classmates, as exemplified in extract 5.

Extract 5: "I hardly had a chance to talk with friends from other programs in face-to-face classes so I felt shy. But when I had online classes and was assigned to work with them I somehow felt more relaxed and confident to talk." - Kiyoko

Apart from interaction among non-intimate classmates, synchronous virtual classrooms were also perceived to have promoted the students' learning experience in psychological aspects. Thanks to the software Zoom's features of instant messaging and breakout classrooms, students claimed they had more confidence in expressing opinions and giving answers in online classes, compared to face-to-face settings. As demonstrated in extract 6, the messaging feature allows students to privately submit their answers to the lecturer without having to worry whether those responses would be right or wrong or whether they would be influenced by others. Furthermore, the feature Breakout rooms enables students to discuss with their classmates without the lecturer's presence, so they reportedly were not afraid to share their opinions, as shown in extract 7. It is remarkable that this aspect of students' perceptions conform to the notion of social presence: learners are meant to be able to engage in the class with "risk-free expression" (Garrison et al., 2003).

Extract 6: "In face-to-face classrooms, when someone gave an answer different from mine I would hesitate. However, I felt more confident to give answers through the chatting feature of Zoom." - Bee

Extract 7: "I sensed more privacy when brainstorming with the classmates in breakout rooms because the lecturer wasn't with us. I could say anything without being afraid that the lecturer would hear me. In face-to-face classrooms with the lecturer being nearby, however, I was worried if I would say anything wrong." - Vivi

The findings concerning cognitive presence show high consistency in the students' perceptions. All students agreed that learning through both instructional channels could contribute to equal learning effectiveness. To elucidate, students were able to understand the lessons being taught in each class successfully regardless of the

different instructional channels. Also, most students stated that they could practice the target skills (i.e. pronunciation) in both classrooms in the same manner, as exemplified in extract 8. Similar perceptions were also found in peer collaboration. Synchronous virtual classrooms were also perceived to have encouraged the students to collaborate with their classmates as well as in face-to-face settings (see extract 9). This is well consistent with the notion of cognitive presence: successful classes are supposed to provide students with a chance for information exchange and connection of ideas through collaborative atmosphere (Garrison et al., 2008).

Extract 8: "I could equally understand what the lecturer taught through the two classrooms. When I was taught new lessons online I could learn them effectively because the lecturer could do everything with Zoom just like he did in the actual classroom." - Valencia

Extract 9: "In Zoom, when doing group exercises I could brainstorm and share my thoughts with my friends to the utmost, just like I did in the classroom." - Bonita

Although it was mostly found that both instructional channels could equally establish cognitive presence, a few perceptions found one-sided are worth discussing. Two students addressed that, even though the feature Breakout rooms allowed them to communicate and collaborate with their classmates online, some activities that require physical collaboration such as hand-writing could not be accomplished through the feature. This seemingly implies that synchronous virtual classrooms do not fully realize cognitive presence (Garrison et al, 2003).

Like social presence, the students' perceptions concerning teaching presence showed contradiction. The students all agreed that interchanged application of both teaching modes could maintain continuity of lessons. They did not sense interruption and difficulty in connecting new lessons with those previously taught in prior classes through the different modes (see extract 10). Also, as demonstrated in extract 11, the feature of video and audio sharing allow students to receive information and materials used in the course in the same manner.

Extract 10: "I think the lessons could come after one another well with the two modes. I didn't have problems connecting lessons when learning through different modes of teaching." - Bonita

Extract 11: "The lecturer could write on the screen like a whiteboard, and when he showed presentation slides I could see and read them without difficulty." - Valencia

Although the two instructional channels are seemingly perceived to equally establish teaching presence, bias arises when internet connection and specific features of the software are taken into account. Seven students found that the transmission of audio and video information was delayed when the internet connection was unstable, causing some of them to lose concentration and even understanding in the lessons being taught (see extract 12). This technical issue was commonly found in literature on online/distance learning (Gedera, 2014; Martin et al., 2012; Ngo, 2019). However, some students preferred synchronous virtual classrooms to traditional instructions for the feature of video recording, allowing them to re-watch the classes. This feature can compensate for the troublesome time concerning delayed information transmission

since students are able to review certain content that they could not follow during the technical problems (see extract 13). Other features which students found well functional include noise cancellation, allowing the lecturer to mute any sound from the students' devices, and on-screen annotation.

Extract 12: "When the internet connection wasn't strong while the lecturer was explaining, I had a problem concentrating on him. Sometimes I wasn't even able to follow the class." - Farah

Extract 13: "Uploading recorded classes allowed absent students to learn and catch up the lessons, and sometimes I could watch those videos to review certain content that I wasn't sure about." - Bee

The overall findings have revealed that the exchanged application of synchronous virtual and face-to-face classrooms are perceived to have established all the three presences of Community of Inquiry. However, there are certain concerns of which instructors are supposed to be aware when considering applying interchangeable instructions. Firstly, one needs to make sure that in-class activities in both teaching modes maintain both student-student and student-lecturer interaction. Secondly, some biased perceptions, especially in social presence and teaching presence, have suggested that one cannot fully substitute synchronous virtual classrooms for face-to-face settings. Those wishing to apply the two channels in an exchangeable manner should create lesson plans specifically intended for each channel so that students are possibly given the most suitable learning experiences throughout an entire course. Thirdly, as already suggested in previous literature, students need to be trained to use software of virtual classrooms, and they are meant to be reminded of possible technical issues, e.g. unstable internet connection and delay in information transmission. With such awareness and understanding, students would be less likely to develop a negative attitude towards synchronous virtual classrooms.

Conclusion

This study aimed to explore students' perceptions of attending an English pronunciation course through interchanged application between synchronous virtual and traditional face-to-face classrooms. The overall perceptions have suggested that all the three dimensions of Community of Inquiry, including social presence, cognitive presence and teaching presence, were realized by the students, thus suggesting that this exchanged application could lead students to the intended learning outcomes (Garrison et al., 2000). Apart from the mutual benefits, it is undeniable that, when looking more closely at each of the presences, the two modes of instruction confer their specific advantages, facilitating students' learning in their own manner. Instructors wishing to apply the two instructional modes interchangeably need to ensure that they could design activities and lessons that exploit such specific benefits of each mode and avoid any preventable issues so that students can have the most desirable learning experience.

Acknowledgements

The author would like to express his gratitude to Asst. Prof. Dr. Chomraj Pattanasorn, the head of English Language Department at Faculty of Humanities and Social Sciences, Khon Kaen University, for his approval of this research study.

References

Barbosa, T. J. G., & Barbosa, M. J. (2019). Zoom: An Innovative Solution for the Live-online Virtual Classroom. *HETS Online Journal, 9*, May 2019, 137-154.

Berry, G. R. (2018). Learning from the Learners: Student Perception of the Online Classroom. *Quarterly Review of Distance Education, 19*, 3, 39-56.

Blaine, A. M. (2019). Interaction and Presence in the Virtual Classroom: An Analysis of the Perceptions of Students and Teachers in Online and Blended Advanced Placement Courses. *Computers & Education, 132*, 31-43. https://doi.org/10.1016/j.compedu.2019.01.004

Dash, S. (2019). Google Classroom as a Learning Management System to Teach Biochemistry in a Medical School. *Biochemistry and Molecular Biology Education*, *47*, 4, 404-407. https://doi.org/10.1002/bmb.21246

Dharma, H. R. C., Asmarani, D., & Dewi, U. P. (2017). Basic Japanese Grammar and Conversation e-learning through Skype and Zoom Online Application. *Procedia Computer Science, 116*, 267-273. https://doi.org/10.1016/j.procs.2017.10.055

Drisko, J. W., & Maschi, T. (2016). *Content Analysis*. New York: Oxford University Press.

Dumont, G., & Raggo, P. (2018). Faculty Perspectives About Distance Teaching in the Virtual Classroom. *Journal of Nonprofit Education and Leadership*, *8*, 1, 41-61. https://doi.org/10.18666/JNEL-2018-V8-I1-8372

Falloon, G. (2011). Exploring the Virtual Classroom: What Students Need to Know (and Teachers Should Consider). *MERLOT Journal of Online Learning and Teaching, 7*, 4, 439-451.

Garrison, D., & Anderson, T. (2003). *E-learning in the 21st century.* London: RoutledgeFalmer.

Garrison, D., Anderson, T., & Archer, W. (2000). Critical Inquiry in a Text-based Environment: Computer Conferencing in Higher Education. *Internet and Higher Education, 11*, 2, 1-14.

Garrison, D., & Vaughan, N. D. (2008). *Blended Learning in Higher Education: Framework, Principles, and Guidelines.* California: Jossey-Bass.

Gedera, D. S. P. (2014). Students' Experiences of Learning in a Virtual Classroom. *International Journal of Education and Development using Information and Communication Technology (IJEDICT), 10*, 4, 93-101.

Law, K. M. Y., Geng, S., & Li, T. (2019). Student Enrollment, Motivation and Learning Performance in a Blended Learning Environment: The Mediating Effects of Social, Teaching, and Cognitive Presence. *Computers & Education, 126* (2019), 1-12. https://doi.org/10.1016/j.compedu.2019.02.021

Martin, F., Parker, M. A., & Deale, D. F. (2012). Examining Interactivity in Synchronous Virtual Classrooms. *The International Review of Research in Open and Distance Learning, 13*, 20, 227-261.

McPherson, R., & Noelting, D. T. (2018). Developing Technical Competence for the Virtual Classroom: Managing Technology-driven Pedagogy, Faculty Development, and the Hidden Workload. *The International Journal of Technologies in Learning*, *24*, 3, 13-27. http://doi.org/10.18848/2327-0144/CGP/v24i03/13-27

Ngo, P. A. (2019). *Developing the ESP Ability of Vietnamese Students through the use of Blended Learning.* Paper presented at the 15th International Scientific Conference eLearning and Software for Education, Bucharest, April 11-12, 2019, 71-79. DOI: 10.12753/2066-026X-19-146

Philipose, C. M., & Rajagopal, S. (2019). Google Classroom as a Learning Management System (LMS) for Teaching English. *A Journal of Teaching English Language and Literature*, 23.

Raes, A., Vanneste, P., Pieters, M., Windey, I., Noortgate, W. V. D., & Depaepe, F. (2020). Learning and Instruction in the Hybrid Virtual Classroom: An Investigation of Students' Engagement and the Effect of Quizzes. *Computers & Education*, 143(2020), 103682. https://doi.org/10.1016/j.compedu.2019.103682

Szeto, E. (2014). A Comparison of Online/Face-to-face Students' and Instructor's Experiences: Examining Blended Synchronous Learning Effects. *Procedia - Social and Behavioral Sciences, 116*, 4250-4254. https://doi.org/10.1016/j.sbspro.2014.01.926

Teng, D. C., Chen, N., Kinshuk., & Leo, T. (2012). Exploring Students' Learning Experience in an International Online Research Seminar in the Synchronous Cyber Classroom. *Computers & Education, 58*, 3, 918-930. https://doi.org/10.1016/j.compedu.2011.10.018

Zevenbergen, A. A., Sigler, E. A., Duerre, L. J., & Howse, E. (2000). The Impact of a Natural Disaster on Classroom Curricula. *The Journal of Educational Thought (JET), 34,* 3, 285-303.

Contact email: phanuth@kku.ac.th

Stories of Diaspora of Overseas Filipino Workers in Singapore: A Management Perspective

Leandro A. Loyola, De La Salle University, Philippines
Mariano M. De Los Santos, Colegio de San Juan de Letran Calamba, Philippines

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract
This qualitative study focused on the documentation and analysis of the narratives on the diaspora stories of the overseas Filipino workers in Singapore in the contexts of their fear, opportunities, and management initiatives, viewed through management perspectives. The Filipino diaspora has gone global having overseas Filipino workers (OFWs) present in all parts of the world. Push factors motivated many Filipinos to seek better job opportunities in developed countries such as Singapore since it offers higher salaries. However, the length of stay for work in the said country is limited by the working pass. Using narrative inquiry as a research design, data were collected through face-to-face interview with the OFW storytellers working in Singapore for five years and more under working pass. Results were then inferred with the functions of management to surface the management perspectives. The narratives revealed that the storytellers were motivated by better quality of life and higher salary. They fear the unknown and uncertainties on their return home. For the opportunities, storytellers consider putting businesses. For management initiatives, they revealed that companies provide skills development programs that could help them. The narratives surfaced plausible inferences on the planning, leading, organizing, and controlling functions of management. The findings and discussions highlighted the importance of education as means to equip the OFWs with the necessary skills and knowledge as they prepare for their return home. It reflected the value of education being integral to their personal and professional growth. They appreciate the initiative of their employers of providing opportunities for learning as they aspire to improve their live

Keywords: management functions, management perspectives, narrative inquiry, overseas Filipino workers, return-home stories

iafor
The International Academic Forum
www.iafor.org

Introduction

The Filipinos are conquering the world by being present in almost all of the countries living and working as migrants. The current social, political, and economic status of the country has pushed the talented and skilled human resource asset for local businesses out of the country as they were pulled by better opportunities, higher wages, and ideal social and political landscapes offered by the global businesses in the developed countries (Massey et al., 1994; Kalaw, 2015).

Globalization enabled Singapore to expand and accept global businesses that provided jobs for its citizens and opened doors of opportunities for migrant workers. Multitude of multinational companies started to exist, which made Singapore's economy grow and continuously thrive. It has now become one of the richest countries in the world, which opened a lot of opportunities not only for skilled labor but most importantly for the professionals. Because of this, many Filipinos left the country and sought refuge in the many opportunities that Singapore has to offer. PSA (2017) reported that the estimated number of Filipinos working in Singapore tripled in the past decade which comprises 5.6% of the 85% of OFWs in Asia. This number has certainly grown bigger to this day and continues to grow as more Filipinos opt to work in companies in Singapore.

Living and working in Singapore may seem to be the newer and easier way to achieve the Filipino dream. However, these Filipino migrant workers in Singapore will also have to face the inevitable reality that their working permits will eventually expire. Many of them missed to consider this as they are overwhelmed by their new lives as migrant workers in the said country. They are too busy to notice that their stay in Singapore will eventually come to an end and that they will have to come back home to the Philippines.

Research Question and Objectives

The main objective of documenting and analyzing the narratives on the diaspora stories of the OFWs working in Singapore on their eventual return home have culled out emergent subjects and themes that were inferred to management perspective. The overarching question assisted in facilitating the development of knowledge:

What diaspora stories do Singapore OFWs tell in the contexts of their:

1. Motivation;
2. Fears;
3. Opportunities; and
4. Management Initiatives?

The narratives were inferred to the discipline of management particularly in the different functions of management. Their contexts exposed meanings that helped in understanding its relevance to the field of management.

Significance of the Study

The study identified concepts and themes related to the narratives coming from the personal viewpoint and experiences of the storytellers. The findings have shown specific significance on the following:

Theory – as a source of information in developing leadership and management theories particularly for multinational organizations.

Policy – as reference for policy development, particularly for government agencies.

Practice – as reference for multinational companies in improving management initiatives, systems, and processes in consideration of the existence of the migrants.

Social Action – as contribution to the betterment of the lives of the OFWs returning home after the end of their contract.

This study also values the importance of the contribution of the OFWs to social development considering their remittances that boosts the country's perilous economy.

Philosophical Lens

Denzin and Lincoln (2011) consider the philosophical assumptions as key premises that are folded into interpretive frameworks used in qualitative research. Thus, this study was grounded on the philosophical lens of interpretivism and other theories of management.

Interpretivism as described as social constructivism seeks understanding of the world in which participants live and work. They develop subjective meanings of their experiences.

Theory of Ladder of Inference - Tompkins and Rhodes (2012) describe the theory as an opinion-forming theory as it helps explain social phenomena adding credibility and influence in moving between data and inference concepts to perceived meanings.

Contingency Theory - it is also believed that contingency managers pay attention to both the situation and their own styles and make efforts to ensure both interact efficiently (Rana et al., 2016). This premise provided a better understanding on the experiences in their work environment in terms of the response and actions of the managers in consideration of the situation of the OFWs.

Scope and Limitations

The scope of this study revolved around the documentation and analysis of the narratives in the stories of the Overseas Filipino Workers working in multinational companies in Singapore under contract or working pass. It covered the fears and anxieties they experienced as they deal with the hanging reality of returning home as well as the opportunities that they see and prepare for. It also considered their worldview and perspectives on management initiatives that could be related to their eventual return-home.

The study was limited on the perspective of the storytellers and did not cover the side of the management of multinational companies. They may be referred to later on as an expansion on this novel study.

Literature Review

In the Philippines, migration has been a culture deemed common, acceptable and desirable for a better life. For over decades, a large number of Filipinos have left their place of origin in search of either a temporary or permanent settlement overseas because of attractive economic and political circumstances in their chosen destination. More than 10 million or 10 percent of the population are working and living abroad (Asis, 2017). Filipinos are scattered all around the globe because of work. Destinations of Filipino Migrants are diversified (POEA, 2015). Collosan (2011) further stated that OFWs travel to their country of destination in search for better opportunities and better life for their families in the Philippines. Low earning capacity and unemployment contribute to the widening income gap between the rich and the poor (Collosan, 2011). The Philippines is recorded to have one of the worst income disparities in the Region where the rich becomes richer and the poor becomes poorer. This contributes mainly as motivation for the people to migrate and work abroad.

Dependent on their income or salary in the host country, a migrant workers' contribution to their families in their country of origin is important. For migrants coming from low-income countries, remittances are the only way to make their ends meet. Remittances play a significant role in the Philippines and are the primary means through which the country attempts to overcome its historic trade deficits and manage its balance of payments (Wiley, 2012). OFWs prefer to go to developed countries because of higher wages that enable them to send bigger remittances. Singapore is one of the most open economies in the Asian region when it come international trade, foreign direct investment inflows and foreign labor inflows. According to Yue (2011), the high foreign labor ration shows the buoyant labor demand, limited domestic labor supply with the decreasing total fertility rate and labor protectionism in Singapore. Foreign labor is needed to grow the population, mitigate the ageing population, grow the GDP and the per capita one, cover the shortages in supply in labor and skills and contain wage costs to continue the international competitiveness. The competition in the workplace aggravated the situation because Filipino migrant workers are being employed as professionals, managers, executives and technicians already (Kalaw, 2015).

It has been argued by Chung and Tung (2011) that the knowledge and the linkages these migrants obtain allows them to reduce transaction costs for bilateral trade. It is a result of a so-called ethnic network effect coming from superior cultural understanding and levels of trust. Fragomen, Jr. (2016) stated that the overarching goal of the Business Mechanism is a regulatory environment in which labor migration policies support business and development to create job opportunities and economic prosperity. Looking at the business-level perspective, organizations exist in a very complex environment wherein it is directly affected by globalization (Go, 2012). For it to thrive and succeed, it must learn to adjust and adapt to the ever-changing conditions of the global market which includes leading and managing migrant workers.

Methodology

This study was *qualitative* in nature as the research problem inquired into the meaning that individuals or groups ascribe to as a social or human problem (Creswell, 2007). Also, qualitative research fully captured the context and the feelings within which storytellers express their fears and anxieties that contributes to their diaspora stories and how it is inferred in the functions of management. *Narrative inquiry,* which is both a methodology and view of the phenomena, was utilized to document and analyze the narratives. Narrative inquiry is a way to study experience (Clandinin & Connelly, 2000). The defining features of narrative research is very much applicable as a research design for this study. According to Creswell (2013), narrative researches collect stories from individuals about individuals lived and told experiences. The heart of this study lies on the stories that came from the storytellers themselves.

The research locale of this study was Singapore as it is a popular destination for OFWs. It also has a unique system of providing working pass for specific period where the main problem of the study stemmed out.

The OFW storytellers were (1) single; (2) aged 30-40years old; (3) had been working in Singapore for five years or more; and (4) have experienced being denied of a working pass. Using snow ball technique, I was able to gather from seven (7) storytellers, who fit the qualifications set, rich data coming from their personal viewpoints and experiences.

One of the most important qualitative data collection methods used in conducting field studies and ethnographic researches is the research interview (Qu & Dumay, 2011). An interview guide was also utilized that lists the questions or issues that were explored in the course of the interview.

To systematically and strategically process and analyze the collected data, I followed Creswell's Data Analysis Spiral in which the process of data collection, analysis, and report writing are interrelated and go on simultaneously. The transcript of the interviews was plotted in the MAXQDA 2018 software for processing. From which, important statements coming from the narratives were highlighted and assigned with a specific code. Also, thematic analysis was treated as a primary descriptive strategy to establish patterns of experiences within the data that were coded. The patterns and the emergent, iterative concepts helped in identifying the themes that are responsive to the research question.

Results and Discussion

This study has gone beyond the social and economic rationale of migration and working abroad as it puts more interest in the diaspora stories of the OFWs in Singapore as viewed and inferred using management lens. The narratives of the storytellers revealed significant findings as they shared their diaspora stories in the contexts of motivation, fears, opportunities, and management initiatives.

Table 1: Summary of Findings (Categories and Emergent Themes)

What are the diaspora stories of the Overseas Filipino Workers in Singapore in terms of:		
Factors	**Categories**	**Emergent Themes**
Motivation	Family	Better quality of life and salary
	Better quality of wants	
	Desire for change	
Fears	Adaptability	Fear of the unknown or uncertainties
	Employability	
	Reintegration	
Opportunities	Chance to reunite with family	Use of savings for other plans
	Business opportunities	
	Migration to another country	
Management Initiatives	Education and self-development	Skills development and training
	Financial security and literacy	

Motivation to be an OFW in Singapore. More than 10 % of the population of the country are working and living abroad (Asis, 2017) and this is due to absence of sustained economic development and wavering political stability. Also, issues like unemployment, underemployment and differing wages (Collosan, 2011) motivated many Filipinos to work in developed countries like Singapore. The narratives of our storytellers revealed their motivation being (1) family-inspired by relatives who are also abroad; (2) better quality of wants-having the capacity to afford high-end wants, and the (3) change in environment-having experienced better social services and facilities. In return, the OFWs make sure that they excel in their fields. According to Portugal (2015), OFWs are a major force in Singapore's service sector.

Fears. Considering the comfortable life that our storytellers have experienced in Singapore, they also narrated their fears and concerns in realizing that they will eventually need to go back home. Return home completes the transnational migration process and is an essential part of temporary labor migration (Kalaw, 2015). It reflects in full circle the diaspora stories of the OFWs as they go through a change in their perceptions and relationships in coping with daily struggles while anticipating a guaranteed return to their families and homeland. The narratives of the storytellers exposed that they fear (1) adaptability-as they may not be able to assimilate quickly back as they got so used to a comfortable and convenient life compared to that of in the Philippines; (2) Employability-there is uncertainty that they may not be able to find a suitable employment that would support their new lifestyle and would maximize their enhanced skills; (3) Reintegration-the fear of going back to the old life of discomforts and inconveniences in the country.

Opportunities. The storytellers already resolved with the truth that they will not be able to find job opportunities similar to what they have in Singapore when they go back home. However, they are consoled by the fact that they would have the chance to make up for the lost times with their loved ones. They view their return as an opportunity and (1) Chance to reunite with their family-as they have been away for

quite a time and this will enable them to make up for the lost times and take care of their aging parents and be with their loved ones; (2) Business Opportunities-putting up their own business using the money that they were able to save while working in Singapore; (3) Migration to another country-many of the storytellers would prefer to migrate and work in another country when their working pass expires instead of settling back in the Philippines.

Management Initiatives. According to Chung & Tung (2011), the social connections of migrant workers help to better match international buyers and sellers. In effect, migrant employees bring valuable knowledge of overseas markets, particularly those of their country of origin, facilitating foreign market entry by the employing company. Given this, our storytellers narrated that the multi-national companies where they work provide (1) Educational and Self-development Benefits-in consideration of their growth as an employee as well as to ensure productivity in the workplace; (2) Financial Security and Literacy-our storytellers value the importance of saving money as a preparation for the future and finds financial literacy sponsored by the company very helpful as it provides options on how to make their money work for them.

Management Perspective. In the process of documenting and analyzing the context and meaning set forth by the storytellers as they shared their narratives have led the researchers in determining aspects of management that is directly related and borne out of the themes that emerged. Dubrin (2016) defined management as the process of using organizational resources to achieve organizational objectives through planning, organizing and staffing, leading and controlling. The emergent themes have led to determine the specific functions of management that are related to the storytellers' viewpoints and experiences.

Table 2. Emergent Themes inferred to the Functions of Management

	Emergent Themes	**Functions of Management**
Management Perspectives	Preparation for the future	Planning
	Work Ethics and Management Styles	Leading
	Discrimination and Stereotyping	Organizing and Staffing
	Adherence to Singaporean Government Policies	Controlling

Preparation for the Future. The companies plan for the future of their business, but they seem to disregard and does not include concrete plans for the migrant employees. Because of this, our storytellers are bound to consider having future plans for themselves. Their narratives have exposed a great deal of consideration with what is in store for them in the future and that is why our storytellers are consciously building up their financial portfolio through insurance and investments as well as having regular savings. These narratives have shown a great deal of inference with the ***planning*** function of management. Planning involves setting goals and figuring out ways of reaching them. Planning is considered to be the central function of management as it pervades everything a manager does. In planning, the manager looks to the future in the same way that our storytellers are also preparing for what lies ahead for them.

Work Ethics and Management Styles. Considering the narratives of our storytellers and taking from the management experts' definition of leading, it is imperative to assume that there is a disconnect with the logical definition and the actual experience of our storytellers. They shared how they like the leadership style of their managers as it encourages disciplined work ethics. However, what is lacking is the sense of direction that could inspire them to perform beyond what is expected. ***Leading*** an organization means influencing others to achieve organizational objectives. It was easily inferred with considering their narratives on the work ethics and management styles of the Singaporeans and their colleagues. Our storytellers saw how dedicated their managers are to their jobs. They also appreciated the work attitude of the locals who are so keen on details and are quick to respond with work problems and keeps a professional stance on work related concerns.

Discrimination and Stereotyping. The companies need to constantly hire new people to complete the workforce because of the high attrition rate. It also entails cost on the hiring process and the training of the new members of the organization. These affects the ***organizing and staffing*** function of management. Because of the diversity in the workplace, many of the OFWs working as professionals, who are being related to working in service industries more so as domestic helpers. This kind of stereotyping has led some of our storytellers to feel discriminated. The discrimination does not only stem out of their race but also with the reality that they are working pass holders. Despite their efforts, they cannot deny the fact that they are considered as third-class citizens within the dynamics of their respective companies.

Adherence to Singaporean Government. Our storytellers are well aware of the fact that their length of stay as a foreign worker in Singapore depends on the government. Regardless whether your company would still need your services, but the government says otherwise, then the company will have to submit to the decision of the government. The ***controlling*** function of management is being observed by the government as they desire to provide opportunities and better social services for their citizens. This is the sad reality that the OFWs need to accept and understand.

Summary of Findings

The storytellers revealed that ***having better quality of life*** is their main motivation to continue working in Singapore. Summarizing the context of their narratives reveal that there is ***fear of the unknown.*** They are uncertain of what will happen when they return home. ***Business opportunities*** seem to be the most ideal and common since they all have savings that they intend to use. Our storytellers were given ***opportunities for skills development*** which include financial literacy as well as funding for educational advancements to enhance their expertise in their field.

Conclusions

Coming from the narratives of the storytellers, it was concluded that they are ***adamant to return home*** and their fears of uncertainty prevent them from returning. They would rather find work in other countries than to go back home. This is because of the ***big disparity with the salary*** as they get to earn more while performing the same task when they were in the Philippines. However, their expiring working pass is still there

so they need to prepare and establish ***coping mechanisms.*** Their only consolation in returning home is to see their loved ones which reflects their ***value for family.*** Looking ahead, their ***financial literacy*** is assumed to help them in being successful with their planned businesses.

The shared viewpoints and experiences of our storytellers confirmed the perspective that ***management is a social practice.*** Managers learn through both experience and study. The major purpose of management is to help get things done in organizations and losing important, reliable, and diligent OFW employees will affect the achievement of this goal.

Recommendations

Considering the literature, qualitative findings, and conclusions of this study, I present valuable recommendations to the different stakeholders involved:

Multi-national Companies. The experiences of the OFWs may serve as relevant basis for *international management.* The concerns may be addressed by establishing *stronger labor welfare mechanism* that will enable continuous skills development, financial wellness, and opportunities for long term employment. Another recommendation is the *distance employment* or the offshoring of workload and services.

Philippine Government. It is recommended for the Philippine government to be more open to *foreign direct investments* to create more opportunities. Filipinos are positioned to benefit from job opportunities offered by the ASEAN Integration. Another productive move is to establish laws for *unified competition or anti-trust law.* This will address issues of monopoly, abuse of power, and consolidation and allow entry of more global businesses. Lastly, is the review and enforcement of the law for the *protection of the OFWs*. It is good that there are programs, but it will be best of it is enforced to promote the welfare of the OFWs including but not limited to social services, financial security, and employment.

Overseas Filipino Workers. It is recommended that they *develop a strong coping mechanism* that will enable them to handle the stresses brought about by their return home. Another recommendation is to *build financial capability and assets*. They will have to take advantage of the opportunity that they are earning more by saving or putting their money to different investments.

Future Researchers. Future researchers may consider the *stories of the managers* of the OFWs as regards to the reality that their employees will have to return home. Another extension are the stories of OFWs who have returned home and settled. This will provide information that could validate or refute the narratives of our storytellers as regards their perceived fears and opportunities. This study may also serve as a reference for those who will use narrative inquiry as a research design and method.

References

Asis, M. (2017). The Philippines: Beyond labor migration, toward development and (possibly) return. Retrieved from https://www.migrationpolicy.org/article/philippines-beyond-labor-migration-toward-development-and-possibly-return

Chung, H. F. L. & Tung, R. L., (2011). Immigrant effects and international business activity: an overview. Journal of Asia Business Studies, 5(1), 6-22. doi:10.1108/15587891111100778

Clandinin, D. J., & Connelly, F. M. (2000). *Narrative inquiry. Experience and story in qualitative research.* San Francisco, CA: Jossey-Bass.

Collosan, J. (2011). Theorising return migration: The conceptual approach to return migrants revisited. *International Journal on Multicultural Societies (IJMS)*, 6(2), pp. 253-279

Creswell, J. (2013). *Qualitative inquiry & research design: Choosing among five Approaches* (Third ed.). Los Angeles: SAGE Publications.

Denzin, N.K. and Lincoln, Y.S. (2011), "Introduction: the discipline and practice of qualitative research", in Denzin, N.K. and Lincoln, Y.S. (Eds), Handbook of Qualitative Research, Sage, Thousand Oaks, CA.

Dubrin, A. J. (2016), Essentials of Management 10th Edition, Wessex Press, Inc.

Fragomen, A. (2016). The business case for Migration: The GFMD business mechanism's position paper and recommendations for presentation at the ninth GFMD Summit.

Go, S. (2012). The Philippines and return migration. International Labour Migration. Retrieved from https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---ilo-manila/documents/publication177081.pdf

Kalaw, K. J. D. (2015). *"Home for good": The experience of return among overseas male Filipino workers (OMFW)* (Order No. 10145052). Available from ProQuest Dissertations & Theses Global. (1864680626). Retrieved from https://search.proquest.com/docview/1864680626?accountid=190479

Portugal, P. (2015). 6,092 OFWs leave the Philippines daily. Retrieved https://filipinoworkers.org/2015/06/30/6092-ofws-leave-the-philippines-daily/

Qu, S.Q. & Dumay, J., (2011). "The qualitative research interview", Qualitative Research in Accounting & Management, Vol. 8 Issue: 3, pp.238-264, https://doi.org/10.1108/11766091111162070

Rana, M. M., Ali, M. J., & Saha, A. (2016). Contemporary Theory of Management: A Comparative Study on Quantitative Approach, System Approach, and Contingency Approach. *International Journal of Business and Management Invention*, 5(5), 14-22.

Tompkins, T. C., & Rhodes, K. (2012). Groupthink and the Ladder of Inference: Increasing Effective Decision-Making. *The Journal of Human Resource and Adult Learning,8*(2), 2012th ser., 84-90.

Wong, T. (2014, December 29). Unease in Singapore over Filipino workers. Retrieved from https://www.bbc.com/news/world-asia-28953147

Wiley, J. E (2012). Exporting People: A Filipino development Model. American Geographical Society's Focus on Geography, 55(1), 19-27. doi:10.1111/j.1949-8535.2012.00040.x

Yue, C. (2011). Foreign labor in Singapore: Trends, impacts and challenges. Philippine Institute for Development. Retrieved from https://dirp3.pids.gov.ph/ris/dps/pidsdps1124.pdf

Contact email: leandro.loyola28@gmail.com
leandro.loyola@dlsu.edu.ph

Teaching Healthy Lifestyle in the Higher Education in Hong Kong: Report and Reflection

Amy Lee, Hong Kong Baptist University, Hong Kong

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract
Since the curriculum reform in 2012, university curriculum in Hong Kong has extended by one year, offering good opportunities to provide a programme of General Education for students despite their chosen major disciplines. The compulsory general education programme is seen to be an important component in the nurturing of the young adults as responsible members of the society, as well as equipping them with necessary knowledge and skills for lifelong learning. The actual course contents of individual universities differ, but the common core covers general knowledge within the arts, the social and natural sciences, and courses that train students' mind and body. The presenter's university has a General Education programme that offers courses designed and taught by individual academic departments, falling within the prescribed categories of courses. This presentation is a sharing of the experience of teaching a General Education course to students of all disciplines in the category of healthy lifestyle. The presenter comes from a Humanities department, and this sharing will highlight issues of course design, coursework requirement, choice of teaching materials and learning activities. The presentation will reflect on the issues mentioned in the context of higher education in Hong Kong, which has an interestingly mixed cultural identity; and a majority of Chinese population with an exposure to global cultures. It is hoped that the report and reflection can invite feedback on course design in similar situations.

Keywords: Cross-disciplinary teaching and learning, Role of General Education programme, Healthy lifestyle, Personalized teaching, Achieving wellness

iafor
The International Academic Forum
www.iafor.org

Introduction

This is a report and reflection on teaching "healthy lifestyle" in higher education in Hong Kong. Some background information about the university and the city will prepare for a better understanding of the report on the teaching experience to be shared. I teach in a liberal-arts oriented research and teaching university in Hong Kong. Our University's vision is "To be a leading liberal arts University in Asia for the world delivering academic excellence in a caring, creative and global culture". The vision statement specifies the characteristics of care, creativity and global-orientation. The "caring" quality is very much part of the DNA of our history, as the university has a Christian background. Our mission statement articulates the "caring" component in the form of "the development of the whole person in all these endeavours built upon the heritage of Christian higher education." We are the first university in Hong Kong to spell out Whole Person Education as our educational ethos, and to see this approach embedded in different aspects of our students' learning. Beginning in September 2012, all universities in Hong Kong offer a 4-year degree programme (except professional degrees and degrees with a practicum component). With the one additional year, an enhanced General Education (GE) Programme emerged, for students of all disciplines.

Our GE programme consists of the University Core component (13 units) which are required courses, and the GE electives (18 units) which students can choose from a set menu. The University Core courses include the English and Chinese languages, a category of courses entitled "Healthy Lifestyle" and, the Art of Persuasion. The GE electives cover a multitude of themes including History and Civilization, Quantitative Reasoning, Values and the Meaning of Life, Sustainable Communities, Science, Technology and Society, Culture, Creativity and Innovation and finally, an interdisciplinary Capstone Experience. Last year, I designed a course to be offered under the Healthy Lifestyle category, and it was first offered in September 2019. This paper is a report and a sharing about this course and the teaching and learning experience.

My academic background is comparative literature and cultural studies, with some basic knowledge in Buddhist Studies. When I volunteered to propose a course in the Healthy Lifestyle category, I had the very simplistic belief that literature and cultural texts can be used in a such a way as to enhance self-understanding and emotional wellness. Without trying to preach Buddhist teachings, I thought the practice of meditation and mindfulness may also fit into a course that teaches "healthy lifestyle". In the process of preparing the syllabus and submitting it for external review, I realised that a more general course about practicing healthy lifestyle was expected: topics such as diet, exercise, emotion management, time management and so on were to be included. So I consulted courses offered by other universities, and textbooks, to come up with a course that satisfied the university requirement as well as external reviewers' expectations, and still maintained some freedom in using "narratives" (which was my original intention) to talk about ways to practice a healthy lifestyle with university students from all disciplines. I give the course a rather long title: How Are You, My Friend? Understanding and Loving Yourself. Although one reason for this long title is to make it memorable (as students have to choose from a list of courses within that category without knowing very much about each course), it does convey my aim and the orientation of the course. I see a healthy lifestyle as

embracing the attitude of having self-understanding and being able to love oneself. I would like students who take the course not to see it as simply fulfilling the graduation requirement but to get some useful information that helps them to know themselves better, and to form habits that will contribute to their wellness in the widest sense.

With that as the background, in the following I will first refer to some of the studies done regarding healthy lifestyle education in universities in different parts of the world, and then share some observations from my personal experience teaching this course. Finally, I will reflect on how we can better create a learning experience that will be relevant and useful for our young people in terms of health education.

Some studies about teaching "healthy lifestyle" at the university level

When I started to work on the course, I had no idea how much and what type of research had been done in relation to healthy lifestyle education in higher education globally. The following is a sketch of some studies I found relevant to my own experience teaching such a course in the previous semester. Lipnickey's paper "The Potential for Formulating a Healthy Lifestyle" (1986) argued for the need to research on "the effects of health instruction received during this time period [university education] on long-term health behavior acquisition and adherence and lifestyle, in general" (Lipnickey, 1986, p. 488), reviewed selected research in this area, and offered suggestions for design of future research. Entering university is not only an important point in intellectual development, but also a point when many young people make decisions in health-related matters for the first time in their life. For many university students around the world, it is also the first time they leave home and have to be responsible for their own general health and well-being (Lipnickey, 1986; Wei et al., 2012). As Lipnickey mentioned, "these young adults will continue to make these decisions for the duration of their college careers, the probability that they lifestyles are at least formulated, if not established, during this time is great" (Lipnickey, 1986, p. 487). The university years are the best time to cultivate in young adults a correct attitude and practice towards lifestyle.

Having established the importance of studying the impact of health education on the university students' lifestyle, Lipnickey referred to two of the few studies that traced the short-term and long-term impact of personal health course on university students, and came to the conclusion that "personal health course had made no statistically significant impact on the overall health behaviors, short or long term, of those individuals who had been participants" (Lipnickey, 1986, p. 494). She also remarked that since not many studies had been conducted to follow up on these university personal health courses, more studies were needed to help understand the impact and further what could be done to enhance their effect. Since Lipnickey's paper, more related studies had been made by researchers in different countries about education of healthy lifestyle at university level. Haerens tried to understand if there is a connection between PE lessons in high school and university students' lifestyle, based on the belief that "PE teachers should aim to promote an active and healthy lifestyle so that students are prepared for lifelong physical activity" (Corbin, 2002; Fairclough, 2003) (cited in Haerens, 2010, p. 130). Although it was found that some university students continued to engage in sports activities that they played in their PE lessons in high school, the study also found that "61.9 percent of the participants indicated that

school PE had not stimulated them to engage in sports activities outside school" (Haerens, 2010, p. 127). Those university students who actively engaged in sports activities reported that they were self-motivated to take up sports, and not due to encouragement from their previous PE lessons.

Besides studies that trace the impact of such courses/programs of health education on students, there are also quite a number of studies and experiments which explore the best approaches in conducting health education. Researchers traced different focuses in the various periods of health education at the university level and proposed to understand the concept of health in a more holistic way than just being a matter of individual achievement (Grudtsina et al., 2017; Quennerstedt et al., 2010).

Healthy lifestyle acquires the status of a complex and global integrative phenomenon and the most important indicator of national wealth that is seen not only as a natural phenomenon (a condition of the body and mind), but as a rather complicated artifact caused by a contemporary cultural discourses (concepts, pictures of world, knowledge) and social institutions and technology" (Grudtsina et al., 2017, p. 56).

With such an understanding of healthy lifestyle, the study presented a strong justification of "preventive pedagogy" in health education to university students, and using scientific method to "developing students' theoretical knowledge about health and healthy lifestyles, abilities and skills to organize a healthy lifestyle, prevention and correction of somatic health" (Grudtsina et al., 2017, p. 56).

Similarly, a study conducted by Swedish and New Zealand researchers traced the development of health education in the schools in New Zealand and Sweden, and described it as coming in three waves: "moral to medical health education", "biomedical health education to healthy lifestyles" and "towards physical, psychological and social well-being" (Quennerstedt et al., 2010). Although the "three waves" presentation suggests a progression and improvement in the practice of health education, the researchers referred to the increasing emphasis on avoiding obesity as a target of health education (as obesity becomes a global illness) as falling back into a previous individualistic and moral approach. To counteract this tendency of retracking to a less advanced phase, the researchers proposed to study the learning of health in students. Learning is understood in a socio-cultural perspective, a "process in which human beings appropriate ways of acting that enable them to participate in different practices" (Quennerstedt et al., 2010, p. 104). Students' learning in health education was seen as "a process to become someone", and the individual's behaviour was observed in the context of culture, institution and history.

With multiple approaches to viewing the concept of health, as well as historical perspective of understanding health education, there are numerous regional and local studies about effective ways of carrying out health education with specific groups of students.

Ivanochko and her team had conducted studies at The Lviv National Academy of Arts, Ukraine, with students of specific disciplines. "Improving the scientific principles of sports for everybody, fitness and recreation" was one of the themes in the 2011-2015 Consolidated Plan issued by the state. To understand the process and effectiveness of healthy lifestyle education (however that is defined in different contexts) on students

of Fine and Decorative Art discipline, a research was conducted on first and second year students. From data gathered about students' learning environment and their needs, the team proposed a 4-stage process to train students in the arts to have a correct attitude and method towards acquiring and maintaining a healthy lifestyle. The four stages were "introduction, from which general healthy lifestyle knowledge is acquired; formation of initial skills and habits of exercise; consolidation of acquired exercise skills; and finally skills and beliefs in the necessity of maintaining a healthy lifestyle throughout life, the emergence of life experience" (Ivanochko et al., 2015, p. 219).

The proposed 4-stage training programme was designed with three specific and "interrelated psychological and pedagogical aspects of teaching in physical education classes: subject-professional, sport and health-related, and socio-behavioral" (Ivanochko et al., 2015, p. 220). They believed that students of different discipline had specific profession-related needs in health education, and this specificity should also be conveyed to the students so that they can take up the responsibility of "self-education in the formation of healthy lifestyle and be acquainted with rational methods of physical education for their improved and creative use" (Ivanochko et al., 2015, p. 223). Working with another group of creative students – Arts and Applied Arts - Ivanochko studied the effectiveness of using specific teaching technology in healthy lifestyle education. The sample (93 students) was grouped into an experimental group and the control group, and the experimental group received "structured pattern of forming their attitude to sports and recreation activities considering the profession of an artist" (Ivanochko et al., 2016, p. 602). At the end of the experiment, it was found that the experimental group expressed more confidence as well as performed better in their understanding of the concept and methods of adapting a healthy lifestyle.

Other efforts to find out effective methods for health education include an intervention research conducted in Isfahan University, Iran, in 2014. Female freshmen residing in dormitories were invited to participate in the study, which involved using psychodrama-based training to promote psychological wellness, measured by the degree of psychological balance, spiritual well-being and optimism. The thirty-two subjects were put into the experimental and control groups. The experimental group received four training sessions using psychodrama-based training methods to enhance their skills in deciding a healthy lifestyle for themselves. Pre-test and post-test were administered to measure the two groups' scores in the three main variables, i.e. spiritual well-being, psychological balance, and optimism. The post-test results showed significant improvement in the experimental group. This approach was effective because

lifestyle is a special way of living, confronting and working in the world….teaching a healthy and proper lifestyle helps individuals avoid substantial mistake (irrational beliefs and unhealthy habits) in stressful life events by using the problem-focused coping methods" (Manzaree Tavakoly, 2014, p. 350).

According to the researchers, the practice of psychodrama allowed participants to enact situations of their lives and even their dreams, thus "helps them express their suppressed feelings and gain a new insight. It also helps them to show and examine more appropriate behaviours with contentment" (Manzaree Tavakoly, 2014, p. 350).

Some studies discover that to improve health education effectiveness among university students, cultivating a particular attitude towards lifestyle is more important that transmission of information. "A healthy lifestyle is a prerequisite for the development of different sides of human activity, reaching active aging and the full implementation of social functions for the active participation in the labor, social, family, household, leisure forms of life" (Biktagirova, 2016, p. 1159). Given the long-term impact of individual healthy lifestyle on a society, under the Russian Government Program of Competitive Growth of Kazan Federal University, researchers developed an interventional program to engage students from February to April 2014, and taught the students the skills to engage in different kinds of sports activities. What was distinct about this programme was the emphasis on the underlying belief, that "Health is Power!" (Biktagirova, 2016, p. 1161). The post-test results showed an increased percentage of students in the experimental group reporting good health (Biktagirova, 2016, p. 1165). This pilot test result suggests that the cultivation of a certain mindset is effective in this kind of interventional programme.

The importance of engaging the students so that they become the active participant in health education has been confirmed in many other studies. Recent studies have focused more on exploring different ways of obtaining students' commitment to such programmes rather than conveying the correct information to them. In a Federal University in Southern Brazil, researchers put together a programme in the Nursing Graduation Course to engage 43 students in healthy lifestyle education. As the students would become healthcare professionals, their commitment to healthy lifestyle was an important of their training. Researchers employed "active methodologies in teaching and learning" to facilitate consciousness raising in the nursing students. "Changing a lifestyle is not an easy task, but it is important to note that they may be caused by stimuli, that is, by being aware" (Fabiane & Kempfer, 2013, p. 7). The use of active methodologies was successful because it "helps the student to propose open discussion ways, where they can manifest themselves and also reflect about their lives, resizing habits as non healthy [sic] and substituting them by healthy ones" (Fabiane & Kempfer, 2013, p. 7).

If we undersand health as a process that occurs in the interactive context of social, cultural, historical and economic forces, then university students are not the only people who need to be made aware of the importance of adapting a healthy lifestyle; the public in general should also have the same commitment. Interestingly, even though governments may have national plans to promote health consciousness, university students, or young people in general, may not be seen as a priority. In 2003, the Ministry of Health, Labour and Welfare announced the "Healthy Japan 21" Programme[1] to promote health in different age groups in the population. Some researchers felt, however, that "university students are not viewed as a priority for health promotion efforts in Japan" (Wei et al., 2012, p. 223), although this period of

[1] In 2003, the Ministry of Health, Labour and Welfare of the Japanese Government initiated the Healthy Japan 21 Project, with an aim to enhance the health of the Japanese people by establishing a system of medical check-ups for the elderly, creating local health centers and other facilities, and training fitness instructors, as a part of the "First-phase Measures for National Health Promotion" begun in 1978 and the "Second-phase Measures for National Health Promotion" begun in 1988. http://www.med.or.jp/english/pdf/2003_02/047_049.pdf The second term of Healthy Japan 21 began in 2013.

life is probably the formative stage of many of their lifestyle habits. In 2008 a descriptive study was conducted in Kumamoto University, to understand university students' lifestyle habits. It was a preliminary study using HPLP-II (Healthy Promoting Lifestyle Profile II) instrument to gather information about "health promotion attitudes and health practices", and interpersonal relations, nutrition, stress management, physical activity, spiritual growth, health responsibility. The results from 314 students served as a good starting point for "healthcare providers to develop interventions to assist students in improving their health lifestyles in the university environment and will help in devising suitable education programs" (Wei et al., 2012, p. 222).

The fact that "Healthy Lifestyle" is a required course in the General Education Programme of my university shows that the significance for young adults to have knowledge to practise healthy lifestyle in their daily life is well recognized in Hong Kong higher education. Two years ago when I designed the course, I asked myself the question of how much students already know before they come to university, about healthy eating, the need for exercise, and emotional wellbeing in general. What has been taught to secondary students and what needs to be added in the University General Education Programme?

Cheng and her co-researcher in 2010-2011 did a survey with a group of 184 Hong Kong secondary school teachers (both pre-service and in-service) who took a health education course to prepare them to teach Liberal Studies/General Studies subjects to assess their readiness and attitude towards teaching lifestyle modification to their students. In the survey, the researchers chose to focus on "the most common non-communicable health problem – hypertension" (Cheng, 2015, p. 120), and sought to find out the teachers' "knowledge level of hypertension, attitudes towards lifestyle modification education to students, perception of knowledgeable to give health education" (Cheng, 2015, p. 119). The result showed that knowledge level was "below average". Moreover, although the teachers believed that enhancing wellbeing in students was important, they were reluctant to take the responsibility of educating the students in this subject. Many expressed that they "did not see themselves as influential person to promote healthy lifestyle" (Cheng, 2015, p. 124) and felt that health professionals would be the more appropriate people to teach the students about modification of lifestyle. This "demarcation of roles" (Cheng, 2015, p. 124) between the teachers and the medical professionals have been observed in other studies too.

With reference to this role demarcation, Cheng explained that "[h]ealth education is non-subject based in Hong Kong school curriculum and is often seen as peripheral to the main subjects such as Chinese and English languages, and Mathematics" (Cheng, 2015, p. 124). Despite the fact that Liberal Studies is a compulsory course for all senior secondary students, and probably for most junior secondary students, healthy lifestyle is not part of the "official curriculum". In order to change the way healthy lifestyle education is perceived by the community, and especially the teaching professionals, the researchers concluded that "[f]urther study on the collective beliefs of teachers and health professionals about what schools should be doing in the area of health education needs to be conducted to examine how support could be provided for the improvement of skills in health education" (Cheng, 2015, p. 124). Having taught the GE course on Healthy Lifestyle to a group of university students, I for one, agree absolutely with the proposal.

"How Are You, My Friend? Understanding and Loving Yourself" as a case study

I decided to call the course "How Are You, My Friend? Understanding and Loving Yourself" because I see it as my personal sharing with students, and hope to cultivate in them the important attitude of self-love. It is also an eye-catching title for a GE course. The class size quota was set to be 40, and after the first meeting, five more students wanted to join and so five more places were added. I was a little surprised at the response because our students are known to be lukewarm about GE courses, and most of the students were not from my home department, so they took the course not because of my reputation (!). I found out later that I didn't have to worry about making the course title eye-catching at all, as the students informed me that they took this course because the course can also fulfil their PE requirement. In other words, many who took the course were students who did not like to engage in sports activities, and this allowed them to sit in a classroom rather than to be outside and playing badminton or volleyball. This already speaks something about their attitude towards a healthy lifestyle.

The course carried 2 credit units, therefore we had a two-hour meeting every week for 13 weeks. The topics and materials I covered in the last semester include: the 7 dimensions of wellness, the model for change in behaviour, proper diet, physical exercise, stress management, emotional wellness, engaging in artistic experience for resilience, mindfulness and meditation practice, and using narratives for therapy. Assignments include one group presentation (of 15 minutes), individual weekly journal (around 300 words in Chinese or English) for 12 weeks, and an individual Personal Resolution Plan, to be submitted at the end of the semester. At first I was a little hesitant about the weekly journals, for besides those students in the Creative Writing programme, they are not used to submitting written work every week, especially when this is only GE. The weekly journal turned out to be another surprise for me, for 95% of the students submitted all the journals, many of them wrote more than 300 words, and even added pictures and other illustrations for clarity. The Personal Resolution Plan (some of them called it PRP) is a proposal-like document to describe and explain one habit that they want to change in their life. The students are supposed to work out a plan for change, and to include ways of measuring success. Only one student did not submit this assignment, those PRPs I received were sincere analysis of their own behaviour and great efforts to make a change.

Reflecting on the semester's teaching, with the benefit of the findings shared by researchers in their respective regions and projects, I have come to realize the following points about health education at the university level:

1. Relevance of course content for students of different disciplines

Invanochko and her team believed that "[p]hysiological characteristics of people who have chosen creative professions nowadays require a special approach to teaching activities preserving youth's health" (Ivanochko et al., 2015, p. 223), and their studies with students of specific disciplines confirmed this belief. My course was open to all, and I found very distinct concerns expressed by the different students in their weekly journals. One Physcial Educaton and Recreational Management (PERM) student

traced his workout plan and complementary diet; one Music student discussed his preparations for the upcoming auditions and performances; and a Business student discussed her internship experience. Although the materials I used were general knowledge applicable for all, their responses showed distinct individual interpretations, very often related to their own academic disciplines.

2. Engagement by the Personal Resolution Plan

I asked each student to name one habit they want to change (or to acquire) and give a full description and explanation in the plan. This is actually a good answer to Lipnickey's comment that "knowledge may be a necessary, but not sufficient, impactor" (Lipnickey, 1986, p. 491) on the effectiveness of health education. She cited findings about students' individual plans being "effective in making at least short term changes" (Lipnickey, 1986, p. 492) in the students' lifestyle, but remarked that lack of follow-up studies had deprived us of evidence of its longer-term effects. I am happy to have used this assignment to engage students, and I am going to follow-up on my class at the end of this semester, to try to see if the change of behaviour could be maintained.

3. The effects of peer pressure on students' behaviour

From reading the students' weekly journal, I come to learn about their concerns and worries in the lifestyle they have. The top "concerns" are sleep, diet, stress, time management, and exercise. I did not expect to see sleep being the top common problem they had. Students residing in the hall wrote that they usually went to bed at 3 am, after participation in hall activities, as they felt obliged to show commitment to "hall life". These activities usually start at midnight, because they had to wait for most students to return to hall after part-time job, or after studying at the library. This reminds me of Lipnickey's observation that "where there is continued reinforcement from peers, often sets the patterns that may be followed for a lifetime" (Lipnickey, 1986, p. 488). At such formative time of their life, while peer pressure is so impactful, it is all the more important to cultivate in them the correct attitude.

4. The need of a "personal approach" to make the knowledge practicable

I required students to write the weekly journal because I wanted to have a more personal relationship with them. As it will not be easy to address individual issues in a group setting (lecture) with 45 students, I expect the journal to be a personal space where they can engage more intimately with me. It turned out to be a truly intimate space where they were honest about their fears, anxiety, and worries. A big boy voiced his anxiety about his overweight problem, quite a few students shared their medical/psychological conditions, more talked about their addiction to being online. In my comments to their weekly journals, I tried to respond to these personal communications, and I can feel that a personal relationship had been established. This personal relationship became a motivation for them to practice what had been discussed in class in their daily life.

Conclusion: Teaching Healthy Lifestyle during a Time of Need

To conclude, let me remind you of the time and place where this course was offered. Hong Kong had experienced an extended period of social unrest starting from mid-June 2019, all the way to the end of 2019, when daily life began to resume a kind of normality. The semester started at the beginning of September 2019, and ended at the end of November 2019. During the semester, many university students were actively involved in the social movement, and my university was among those besieged and had to stop face-to-face teaching before the official end of the semester. I had always believed in subscribing to a healthy lifestyle, but its importance had never been so visible and real to me as in the past semester. The weekly journals became the place students expressed their fears, anger, and frustration. Many of them said that they had never been so eager to complete an assignment as the weekly journal; and when I put a recording of the lecture on our e-learning platform, students wrote to me to express their joy in hearing my voice again. This is an exceptional time, I know, but it does show us that health education has a core role to play in higher education, and moreover, should be as individual and as personal as possible, to have the biggest impact.

Bibliography

Biktagirova, G. F. (2016). Formation of University Students' Healthy Lifestyle. *International Journal of Environmental and Science Education , 11* (6), 1159-1166.

Cheng, N. I. (2015). Knowledge and Attitude of School Teachers towards Promoting Healthy Lifestyle to Students. *Health , 7*, 119-126.

Fabiane, S. L., & Kempfer, S. S. (2013). Active Methodologies as Strategies in Nursing Teaching: Raising Awareness Towards Healthy Habits. *Journal of Nursing Education and Practice , 3* (6), 1-8.

Grudtsina, L. Y., & al., e. (2017). Preventive Pedagogy: Methods of Research University Students' Readiness Formation for a Healthy Lifestyle. *International Electronic Journal of Mathematics Education , 12* (1), 51-58.

Haerens, L. (2010). Motivational Profiles for Secondary School Physical Education and its Relationship to the Adoption of a Physically Active Lifestyle Among University Students. *European Physical Education Review , 16* (2), 117-139.

Ivanochko, V., & al., e. (2016). Efficiency of using the teaching technology while developing healthy lifestyle skills in arts students. *Journal of Physical Education and Sport , 16* (supplement issue 1), 598-603.

Ivanochko, V., & al., e. (2015). Organizational Conditions of Healthy Lifestyle Promotion for Arts Students. *Journal of Physical Education and Sport , 15* (2), 218-224.

Lipnickey, S. C. (1986). The Potential for Formulating a Healthy Lifestyle: An Assessment of Health Instruction and the University Student. *Evaluation and the Health Professions , 9* (4), 487-506.

Manzaree Tavakoly, F. e. (2014). Effect of Psychodrama-Based Group Training for Healthy Lifestyle on Psychological Balance, Spritiual Well-Being and Optimism. *Journal of Life Science and Biomedicine , 4* (4), 346-351.

Quennerstedt, M., & al., e. (2010). From Teaching Young People to be Healthy to Learning Health. *Utbildning & Demokrati , 19* (2), 97-112.

Wei, C.-N., & al., e. (2012). Assessment of Health-promoting Lifestyle Profile in Japanese University Students. *Environmental Health Preventive Medicine , 17*, 222-227.

Contact email: amylee@hkbu.edu.hk

Exploring Filipino Kindergarten Children's Concepts of the Environment: A Study of Drawings

Geri Mae A. Tolentino, University of the Philippines Los Baños & Southern Luzon State University, Philippines

Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract
The success of Environmental Education (EE) is based on how the curriculum helps students develop the "right" relationship with the environment. EE scholars reveal that environmental problems arise not because EE approaches have failed but because people connect with the environment differently. Hence, educators should understand students' views of the environment before formulating environmental science lessons. Children should be taught to view themselves as part of the environment at the early childhood stage because, during these years, they develop their basic values, attitudes, and habits. However, young children do not always have the words to describe what they see, think, or feel. Thus, drawings and interviews were used to elicit children's environmental concepts. Thirty-five drawings and transcribed interviews of kindergarten pupils from a public school class in Calauan, an agro-industrial municipality south of Manila experiencing some environmental problems, were analyzed. Results show that the children see the "environment" as an area composed of more natural elements than built or human elements. Common in the drawings is the presence of weather elements. Only less than half have humans in their drawings, indicating that they see humans as separate from the environment. Through the drawings and interviews, it was found that the role of past experiences is vital in children's conceptions of the environment. Moreover, some drawings have evidence of misconceptions of their environment, specifically the presence of day time and night time elements in one drawing and the existence of "foreign" fruit in the locality.

Keywords: Concepts of the Environment, Kindergarten, Drawings

iafor
The International Academic Forum
www.iafor.org

Introduction

Young children have always been fascinated by their environment. They usually explore their surroundings—touching and even tasting things, wondering if this move or not, and asking how nature around them generally works. Hence, it is during these years, usually from zero to eight years old, that they slowly discern the environment around them and its effect on their daily lives. A young Filipino may be used to experiencing and hearing about calamities caused by natural hazards such as typhoons, storm surges, volcanic eruptions, or occasional earthquakes because of the country being located at the Typhoon Belt and the Pacific Ring of Fire.

However, it should be noted that young children are also "the most vulnerable to, and most at risk from sustainability challenges, now and into the future" . United Nations Children's Fund (UNICEF) categorized the impacts of climate change on children into three: Health, Education, and, Well-Being and Protection. Children's immune systems have not yet developed, thus, during calamities, children easily incur injuries and diseases. Moreover, education is abandoned during these calamities. Deprivation in education caused by the experience of calamities leaves "long-term mental and physical health and inability to contribute to a sustainable society" . Lastly, calamities caused by climate change have social and psychological implications for children. As in typhoon *Haiyan*, many families were relocated and torn apart. Hence, children faced a heightened risk of psychological stress, physical harm, trafficking, and exploitation.

Children, which is the biggest age group in the Philippine population, have great potential in contributing to a sustainable, climate change-adapted society if they have acquired knowledge about the (1) dynamics of the environment, (2) ways they could respond and adapt to natural hazards; and (3) different approaches of taking care of the environment. Herewith, gaining experience and knowledge of the environment through the implementation of Environmental Education (EE) at the early childhood stage could give the Filipino child a provocation to protect and act as a steward of the local natural resources. This will, thus, allow future generations to also reap natural ecosystem benefits that individuals of the past and present are profiting from.

Environmental Education (EE) is one of the most important, more efficient, and more promising strategies proposed to achieve sustainable development (Nasibulina, 2015; Kasimov, Malkhazova & Romanova, 2002). EE is defined by the ASEAN Environmental Education Plan 2014-2018 as, "the process of helping people, through formal and non-formal education to acquire understanding, skills, and values that will enable them to participate as active and informed citizens in the development of an ecologically sustainable and socially just society". One goal of EE is to aid its students to clearly understand the interdependency and interrelatedness of the social and natural systems.

Therefore, it is in due course for scholars of environmental science, early childhood development, and education to profoundly study the Filipino children's relationship with nature, state of environmental knowledge, and even their capabilities in responding to environmental problems. The main purpose of the study is to semiotically describe children's concepts of the environment through drawings and in-depth interview transcriptions. More specifically, the study aims to (1) identify and

categorize symbols used by children to represent the environment; and (2) determine features and emerging themes of the children's drawings that reflect their understanding of the environment.

Determining the students' emerging environmental understandings would aid early childhood educators in providing a more appropriate environment or science-related experience and learning environment for children specifically in Calauan, Laguna.

Conceptual Framework

The conduct and analysis of children's concepts of the environment are based on Peirce's Semiotic Approach. Semiotics studies non-linguistic forms of communication and sees signs and images as representations of human perception. Because young children may not always have the capacity to communicate their thoughts in written form or even verbally, their drawings will be considered as the language used to express their opinions and views of the environment. According to Yavuzer (1997), children's drawings are indications of mental development because, through this art form, they can organize and reveal their understanding of the complex world they live in.

Peirce's Semiotic approach examines the (1) icon, the representation of the object; (2) index, a real relationship that is established with its object; and (3) symbol, social consensus and context-based aspects in interpreting the meaning of specific concepts. For this study, the children's drawings will represent the icon that represents the object. The personal interviews with children will serve as the method to establish the index. While the coding phases will aid in establishing the symbol, in which the icons and index are communicated, reflected upon, and contextualized (Figure 1).

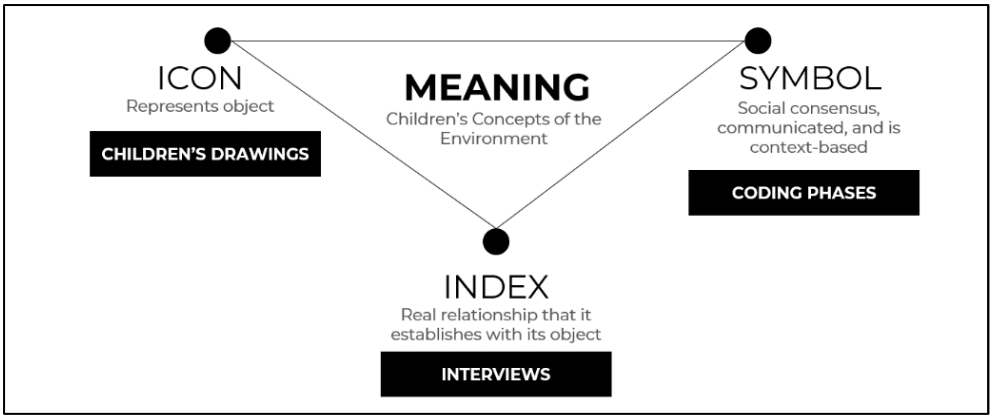


Figure 1: Conceptual Framework of the study

Methodology

This study was conducted in Calauan, a municipality in the province of Laguna, Philippines which has experienced several environmental problems that include contamination of well waters due to pesticides (Medina, Calumpang & Medina, 1991), contamination of ground and surface water by leachate because of a former/closed landfill , relocation of environmental refugees , and ineffective solid waste management. The respondents of the study were selected through non-probability,

purposive sampling. The public school with the largest population in the town proper and biggest preschool class in terms of population was chosen. All of the students in the preschool class, composed of forty (40) five to six-year-old students, were asked to participate. Permissions were granted by local academic authorities and their parents. The researcher spent three weeks in the classroom. Two weeks were spent to get to know the children and spend time with them. The third week was allocated for the drawing activity and one-on-one in-depth interviews.

To determine the respondent's conceptions of *what the environment* is, a drawing activity adapted from Sorin and Gordon (2012), was conducted. Research on very young children has been deemed difficult because of the challenges faced in collecting valid, reliable, and extensive data. Hence, to understand how children think and feel about certain issues, scholars employ various methodologies and sources. These include recordings of children's conversations, some anecdotal notes, photographs of their actions, and samples of their drawings .

Each child was given a sheet of letter-sized white paper, 8 ½ inches by 11 inches. Standardized drawing materials, a specifically sixteen-color box of crayons were also provided. The sixteen colors were the following: black, blue, brown, green, orange, red-violet, yellow, blue-green, blue-violet, carnation pink, red-orange, red-violet, white, yellow-green and yellow-orange.

For the first part of the drawing activity, students were asked to illustrate the "environment". The students were specifically asked, "What is the environment for you?" Or in the vernacular or Tagalog language, "*Ano ang kapaligiran para sa iyo*?" The students were given 30 minutes to complete their drawings. At the end of the allotted time, the drawings were submitted. As suggested by Sorin and Gordon (2012) when doing drawing activities with young children, the researcher interacted with the children while taking notes during the drawing process. After the drawing sessions, the students' photographs were taken together with their drawings to avoid mixing up of drawings. They were then individually interviewed about their drawings. They were specifically asked two questions: (1) "What are the elements of your drawing?" and (2) "What is your drawing about?"

For the analysis of data, two coding phases of the student's environmental conceptions and awareness were employed. Using the student's drawings of the environment and the interview transcriptions, the first coding phase was done. All the drawings were reviewed and all the elements in the drawing were listed. Categories were then formulated based on the emerging themes of the elements. The categories are: natural, built, human, natural-built and others (Table 1).

Table 1. Formulated categories and examples after first coding

NATURAL	BUILT	HUMAN	NATURAL-BUILT	OTHERS
Biotic elements (plants and animals) Abiotic elements (sun, moon, clouds, stars, sea, mountain, etc.)	Buildings Vehicles Flag etc.	Male Female Ambiguous	Flower in pots Fishes in aquariums	Words Shapes

For the seconding coding, the counting strategy was utilized in which all the elements were grouped into their category for each drawing. Frequencies and percentages were computed individually and as a group. After indicating the presence of the elements in each category, the drawings' descriptions (e.g. color, interaction with other elements) were indicated. The student's awareness of environmental issues was also taken into account by taking note of indicators of environmental issues such as fallen trees, smoke, dirty water, and the like.

Results and Discussion

During the drawing activity, five children were absent. Hence, only 35 valid drawings were produced. For the first coding, all the elements drawn by the students were identified using the drawings and the interview transcriptions. Themes and categories were then conceptualized using the existing elements (Table 1). Each drawing was analyzed. All the elements were identified and classified. Descriptions by the child (from the standardized interviews) and the researcher were also given.

Concepts of the Natural and Built Environment

According to the Department of Education's (DepEd) December 2013 "Standards and Competencies for Five and Six-Year-Old Filipino Children", the students of kindergarten should be able to "demonstrate a basic understanding of concepts about living and non-living things including weather and uses these in categorizing things in his/her environment".

There were a total of 371 elements drawn by the pupils from public school. For the 35 drawings of public school kindergarten pupils, there were 236 (64%) natural, 76 (20%) built or artificial, 29 (8%) natural-built, 27 (8%) human, and three unidentified (1%) elements. Twenty-seven (77%) of the 35 drawings of public school pupils have 50% or more natural elements in their drawings. For each drawing, it is expected that there would be seven natural, two built, one human and one natural-built element.

Table 2. Category of elements drawn by public kindergarten pupil's drawings of the environment

CATEGORIES	FREQUENCY*	PERCENTAGE (%)	MEAN PER DRAWING
Natural	236	63.61	6.7
Built	76	20.49	2.2
Natural-Built	29	7.82	0.8
Human	27	7.28	0.8
Unidentified Objects	3	0.81	0.1
Total	371	100	NA

λ *Multiple elements are drawn by each student*

Hence, for public school kindergarten children, the environment is mostly made up of natural than built or human elements. This just reflects how the environment is defined by society—especially the education sector. An environment is a place in which biotic and abiotic elements are contained but are ideally separate from the societal and technological realms.

The natural elements drawn by the public school kindergarten pupils can be grouped into biotic and abiotic elements. There are a total of 130 biotic and 106 abiotic elements. For the biotic elements, more plants (105) were drawn than animals (25). The most common plant elements drawn are trees and flowers. On the other hand, the most common animals drawn are insects and birds. Since the early 1900s, researchers found out that natural components mostly drawn by children are animals and flowers. For abiotic elements, the most commonly drawn are celestial elements such as clouds, sun, rainbows, and moon. Other abiotic elements drawn are rivers, mountains, and seas. Again, the results are not surprising. The environment in which the children live is surrounded by mountains and rivers. Even with rapid urbanization, many towns still live up to its province's name *Laguna*, which might have been derived from the local terms *lago (lush, grow)* and *na* (now). The name might have also been derived from *lagoon* because it is home to one of the largest lakes in the Philippines, *Laguna de Bay*, which the children would have already seen and would have mistakenly thought of it as a 'sea'. Moreover, the town of Calauan, which is known for its sweet pineapples, is surrounded by hills and valleys.

For some of the respondents, their concept of the environment is mainly the natural environment—the physical and biological elements. For the examples (Figure 2), both have drawn similar biotic elements—trees, butterflies, flowers, and grass. They also have the same abiotic elements—sun and clouds.

Figure 2: Drawings 6 and 14 - Environment as mainly composed of natural elements

The authors of drawings 6 and 14 are both six years old and are from different *barangays* (villages). However, the similarities in the components and organization of their drawings are evident. According to Roland (2006), though the experience may be a factor to a child's conceptualization of what the environment and its elements should look like, at age five or six, children's symbols are highly individualized. Meaning, how they draw a tree or a person is a result of how they understand it rather than their observation of the world. Hence, this drawing of the environment might not be an exact place but their idea of what the environment should look like.

Furthermore, the built elements drawn by the students are mostly houses, swings, roads, schools, airplanes, cars, etc. This result is similar to Koppitz's (1968) study in which most of the built elements drawn by children are houses, cars, and planes. On the other hand, some elements which cannot be classified are placed under natural-built elements. Examples of this are a flower in pots and fish in aquariums. Other elements include words, planets, and shapes drawn by the pupils. Looking at the drawings, many of the elements can be identified by other people even without the narratives of the respondents. This is expected because according to Roland (2006), "by the age of five or six, most children have developed the repertoire of graphic equivalents for the things in their environment".

Weather Elements

One of the important things the DepEd wants Filipino kindergarten pupils to know about the environment is determining the weather. At the start of the class, the public school teacher who is in charge of the respondent class always leads a weather song that helps the students identify the date and weather of the day (sunny, cloudy, stormy, etc.).

Most of the respondents (69%) have shown weather elements in their drawings. However, together with the sun, they have depicted another weather element which is the rainbow (20%). The results are in agreement with a kindergarten curriculum which states that at ages four or five, children would be able to identify the "weather and climate in their immediate surroundings from their point of view". Learning about

the weather is a way for kindergarteners to realize one of the ways the environment could affect human lives.

Human Component

An idea of the interdependence of the social and natural realm is one of the first and more important lessons to appreciate in environmental science. To be sensitive to the environment and be able to properly take care of it, human beings should have an idea that people and nature (biological and physical) are in a mutually-sustaining relationship. Humans are part of the environment. Humans need nature to survive and nature is to be properly managed and taken care of by humans. Hence, for the "ideal" drawings of the environment, based on the field of environmental science, the presence of a human component is important. For public school pupils, 15 (43%) out of 35 drawings have humans (Figure 3).

Figure 3: Drawings with human components

Developmentally, a five or six-year-old's omission of some elements in his/her drawing should not be a cause of immediate concern for a parent or teacher. According to Roland (2006), this just means that the child may just consider that particular element as less essential for that certain topic being asked of him/her. Since more than 50% of all the pupils from the public school omitted a human component in their drawings, it could be perceived that the children see the presence of humans as not that important when one talks about the environment. For many of them, humans may be considered as separate from the environment.

This result could be of great importance for EE. This confirms that the first lesson that must be taught to children about the environment could be about the mutual relationship between humans and the environment. However, some children (43%) also recognized that humans are part of the environment and included human components in their drawings. Most of them either drew themselves or their families.

Human Component (Self-portrait and the environment)

There were seven (20%) pupils from the public school class who depicted themselves in their drawings. Researchers have concluded that children ages five and six are egocentric. Meaning, the children see themselves as the center of all things and thus, have less concern about others. However, compared to a two-year-old, five and six-year-olds are slowly becoming less egocentric and may even try understanding the point of view of others like their friends, parents, and teachers.

Being egocentric at this stage may be advantageous when learning about their relationship with the environment. According to Roland (2006), "art plays a crucial role in the self-defining process." Through drawing, the child may be able to identify the people, things and processes in their environment that are particularly beneficial and important to them. With this, the child starts to have an idea of his/her relationship to the environment.

In one of the self-portrait drawings (Figure 4), the student specifically said that she is the girl in the drawing and this is their house's front yard (Drawing 20). She described her love for the environment through the drawing. She narrated that in the drawing she was doing one of her hobbies which is gardening. Hence, at this age, children can realize the benefit and enjoyment they gain from the environment.

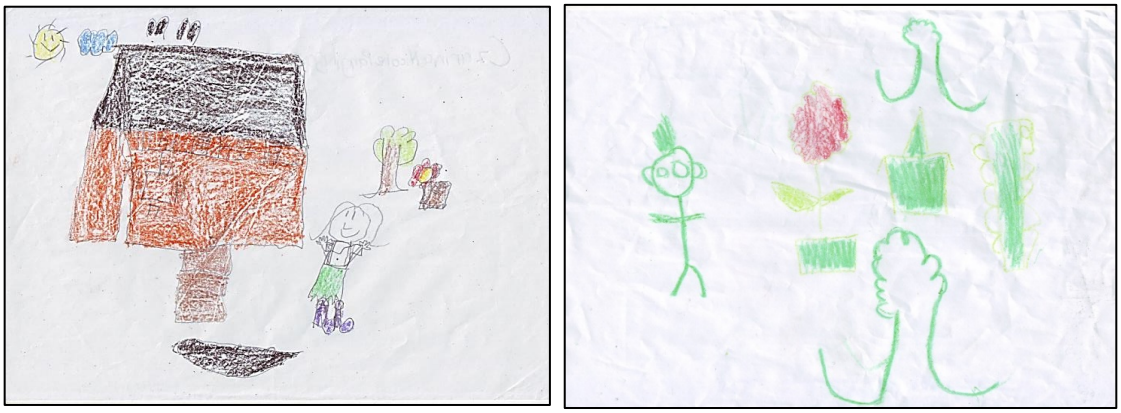


Figure 3. Drawing 20 and 34: self-portrait and their environment

On the other hand, Drawing 34 was made by a boy. He specifically said that he is the person in the drawing. Having spent already a week with the pupils, the researcher somehow guessed that he was the boy in the drawing because of the spiky hair, but it was just validated during the individual interviews. This just shows that children, five and six years old, might know their unique features or those features that differentiate them from other people so that they could be identified.

Another unique element drawn by the child (Drawing 34) was the papaya (*Carica papaya*) tree on the left side of the drawing. He illustrated how different a papaya tree looks like to the two other trees drawn. The boy could have noticed this because he lives in *barangay Paliparan*, a village famous for fruit farms. Hence, this validates Piaget's (1994) assumption that children from their knowledge of the environment through their experiences and that they have the innate desire to know about the world.

Human component (Family members and home)

Six pupils (17%) drew their family or a family member in their drawings. Twenty-seven (77%) of the 35 drawings of the public school kindergarten pupils depicted their home environment. Filipino kindergarten children only stay at school for about five to four hours, hence, most of the day is spent at home. Five and six-year-old children usually tend to draw things that are significant to them . Not only do they draw themselves, but they also represent other people in their drawings (Figure 5).

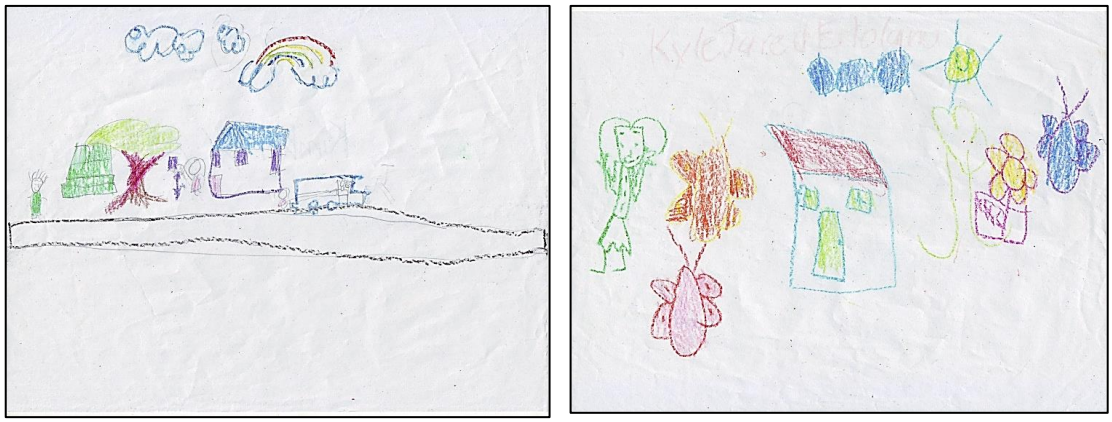


Figure 5: Drawing 19 and 18 - examples of drawings featuring family and the environment of public kindergarten pupils

In the first example drawn by a public school kindergarten child (Drawing 19), her concept of the environment is the people and the activities done around her. The child narrated that the woman at the center of the drawing is her mother who is watering plants. The man on the right side near the swing (green) is her father. The woman riding a jeep is her sister. Hence, in her concept of the environment, there exist people with a natural and build environment.

In another drawing by a boy (Drawing 18), he drew a girl. Since he is a boy, he was specifically asked about the drawing. He said that the girl in the drawing is his sister. Seemingly, his sister, who is also in the same elementary school, is a great influencer for him. In the environmental attitude interviews, he was asked why he does not want to segregate and he answered that his sister does not also segregate and he wants to do the same.

Research has proven that family members are good influencers in developing positive environmental behavior. It was suggested that parents are to help their children visit and connect with nature. This shows that environmental conceptions and attitudes are indeed influenced by family members, whether it is their parents or their siblings. This shows that the school should work hand-in-hand with the family to develop the right environmental conceptions and positive environmental attitudes of the children.

Role of Experience in the Conceptualization of 'The Environment'

Though it is known that four to six-year-olds, at their stage, may have some confusion of reality and fantasy, the role of experience in the conception of the environment is

still significant. In fact, according to Sali, Akyol, and Baran (2012), "environmental opportunities of kindergartens and preschools gain specific importance for preschool children." Thus, most of the environments drawn, as mentioned, are usually related to their home, village/community, and school. About 20% of the respondents drew themselves, 17% drew their family members, 77% drew their home environment and 0.06% drew their school. All these are drawn from experience.

Only two pupils from public schools drew a school as their environment. These are Drawings 3 and 10. This might be because, for kindergarten pupils, they spent only a minimum of three hours in school. Only one (Figure 6) of these two drawings designated the school as the focal point of the drawing.

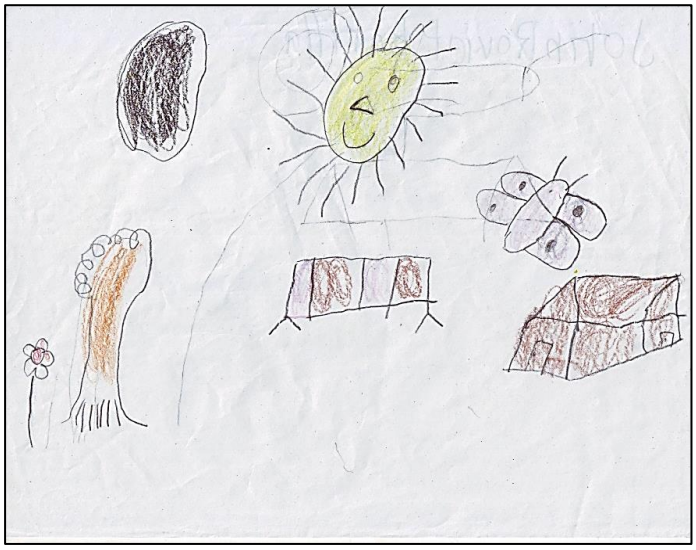


Figure 6: Drawing 10 - School as the environment

For Drawing 10, a playground is drawn beside the school. On their campus, there is a similar playground structure. The depiction of the school with a playground is comparable with the research of Sali *et al* (2012) because these facilitate outdoor play for the children. These are memorable places for children, hence, it can be seen in many school drawings.

The other example that shows the role of experience in the environmental conception of a child is that of Drawing 13. This is an example portrayed in a daily situation experienced by the child (Figure 7). This drawing is created by a child from *Barangay Lamot I*. If one has been to this village, the rolling hills with lush evergreen trees are evident. This is also seen in Drawing 13. The way the child drew the mountains are very unique compared to the other drawings. The "little" trees are specifically drawn indicating the child's awareness of the presence of those trees in the hills as seen from her house. Hence, a five to six-year-old child can observe the different elements in the environment, their arrangement, forms, and relative sizes.

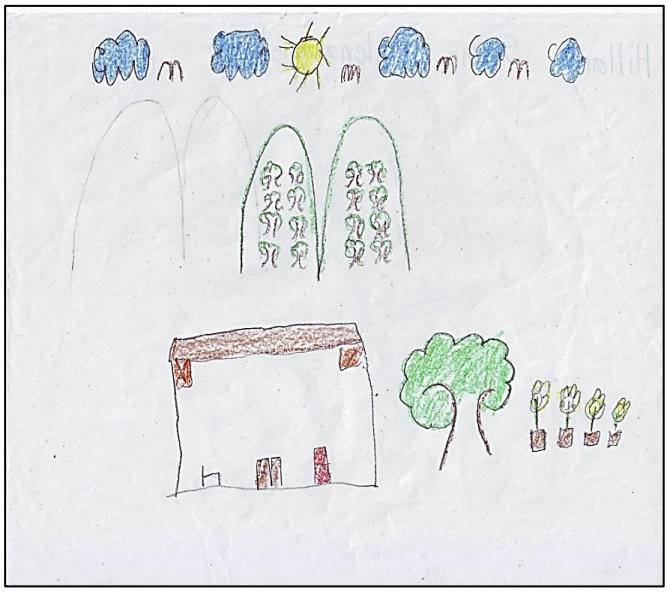


Figure 7: Drawing 13 - Drawing from a daily experience

Some Misconceptions about the Environment

According to Barraza (2006), drawings of five to seven-year-olds are usually called "intellectual realism". This means that the elements of their drawings are that which "the child knows to exist, even though they cannot normally be seen".

One of the more consistent "misconceptions" in the children's depictions of the environment is their practice of putting into one picture celestial elements for day time and night time. Five pupils (Drawings 5, 21, 29, 30 and 32) from public school drew a moon and/or stars together with the sun. Though this study is not about concepts of day time and night time, this result may be similar to Saçkes' (2014) study of Turkish kindergarten students. The conclusion was children in this stage have "naïve mental models of the day and night cycle." In Saçkes's (2014) study, for instance, only 14 of 46 children described the appearance of stars and moon in the sky as indicators of night time and only 18 of the 46 children mentioned the existence of the sun as day time.

Furthermore, another "misconception" depicted by three pupils is the existence of "foreign" fruit in their environment. The pupils who illustrated these foreign fruits in their environment are two boys and three girls. This means that regardless of gender, every Filipino child could be more knowledgeable about foreign fruit which is usually and most commonly found in the local market and is used as examples when learning the alphabet. For instance, the children will draw apple or orange trees, which do not thrive in the Philippines, in their environment.

In Drawing 32, the author depicted his *barangay* as his environment (Figure 8). He was then asked about what fruit was found in the trees in his environment, his answer was, "apple trees". He was asked again to clarify and he nodded and confirmed.

Figure 8: Drawing 32 - "Apple trees" in the environment

Conclusions

The understanding of public school kindergarten pupils of the term "environment" is an area composed of more natural elements than built or human elements. Specifically, for each drawing of a public school kindergarten pupil, it is expected that there would be seven natural, two built, one human and one natural-built element. Especially common in the public school kindergarten pupils' drawings are the presence of weather elements. Moreover, only less than half of the drawings contain human components, indicating that they see humans as separate from the environment.

Through the drawings and individual interviews, it was also found that the role of past experiences is vital in their conceptions of the environment. Hence, it is recommended that experiences in and with nature—nature walks, taking care of pets, segregating wastes, touching leaves and soil, etc.—be created for the children to enhance their connection and affinity to the environment.

Lastly, some of the drawings have pieces of evidence of misconceptions in the environment such as the presence of day time and night time (celestial) elements in one drawing and the existence of "foreign" fruit in their environment. Hence, the use of endemic animals and plants as examples in different subjects such as Values, English, Filipino, Math, and Science should be used rather than "foreign" examples. This would help children learn more about the natural resources present in the local environment that would lead to appreciation and care for the environment they are currently living in.

References

Ahdoot, S. (2015, November). Global Climate Change and Children's Health. (C. o. Health, Ed.) *Pediatrics, 136*(5), 1-5.

Barraza, L. (2006). Children's Drawings About the Environment. *Environmental Education Research, 5*(1), 49-66.

Belen, J. (2012, November 6). *Geological and Environmental Study and Assessment of Sanitary Landfill Facilities CY 2011*. Retrieved February 3, 2016, from Department of Environment and Natural Resources IV-A CALABARZON: http://calabarzon.denr.gov.ph/index.php/technical-services/land-management-service-calabarzon-region-4-a/169-geological-and-environmental-study-and-assessment-of-sanitary-landfill-facilities-cy-2011

Davis, J. M. (2008). What might education for sustainability look like in early childhood? In S. a. United Nations Educational, *The contribution of early childhood education to a sustainable society* (p. 18). Paris: United Nations Educational, Scientific, and Cultural Organization (UNESCO).

Deledalle, G. (2000). *Charles S. Peirce's philosophy of signs : essays in comparative semiotics.* Bloomington, IN: Indiana University Press.

Dymenta, J., Davies, J. M., Nailona, D., Seyum, G., McCrea, N., & Hill, A. (2014). The impact of professional development on early childhood educators' confidence, understanding and knowledge of education for sustainability. *Environmental Education Research, 20*(5), 660–679. doi: http://dx.doi.org/10.1080/13504622.2013.833591

Eimer, D. (2013, November 13). *Typhoon Haiyan: children at risk of abuse and trafficking*. Retrieved February 6, 2016, from Telegraph Media Group Limited : http://www.telegraph.co.uk/news/worldnews/asia/philippines/10447457/Typhoon-Haiyan-children-at-risk-of-abuse-and-trafficking.html

Flores, H. (2013, April 4). *P-Noy signs law on early childhood development*. Retrieved from The Philippine Star: http://www.philstar.com/education-and-home/2013/04/04/926723/p-noy-signs-law-early-childhood-development

Fromboluti, C., & Seefeldt, C. (1999, January). *Early Childhood:Where Learning Begins (Geography)*. (L. Darby, Ed.) Retrieved April 5, 2016, from U.S. Department of Education: http://www2.ed.gov/PDFDocs/geography.pdf

Koppitz, E. M. (1968). *Psychological evaluation of children's human figure drawings.* New York: Grune & Stratton.

Medina, J.R., S.M.F. Calumpang and M.J.B. Medina. (1991). Insecticide residues in selected well waters in Calamba and Calauan, Laguna. *The Philippine Agriculturist,* 74(2), 195-206.

Moya, G. (2013, December 06). *Failed relocation in 'Bayan ni Juan'*. Retrieved February 3, 2016, from Rappler: http://www.rappler.com/move-ph/issues/poverty/44363-failure-relocation-housing

Raising Children Network. (2016). *5-6 years: child development*. Retrieved April 4, 2016, from Raising Children Network: http://raisingchildren.net.au/articles/child_development_5-6_years.html

Ranada, P. (2014, December 3). *PH named country most affected by climate change in 2013*. Retrieved from Rappler: http://www.rappler.com/science-nature/environment/76868-philippines-tops-global-climate-risk-index

Save the Children Australia. (2015, September). *Investing in Children for Climate Change: Policy Brief.* Retrieved February 6, 2016, from Save the Children Australia: https://www.savethechildren.org.au/__data/assets/pdf_file/0006/114549/FINAL_Climate_Change_PositionPaper.pdf

Stolley, R. (2012, December). *Working with Children and their Drawings.* Retrieved April 4, 2016, from University of Wisconsin-Madison Library Resources: https://minds.wisconsin.edu/bitstream/handle/.../Stolley%20Rebecca.pdf?

Thacker, S. (2013, September 10). *Education and Climate Change in the Middle East and North Africa*. Retrieved February 6, 2016, from The World Bank : http://blogs.worldbank.org/arabvoices/education-and-climate-change-middle-east-and-north-africa

Turkcan, B. (2013). Semiotic Approach to the Analysis of Children's Drawings. *Educational Sciences Theory & Practice, 13*(1), 600-607.

UNICEF Innocenti Research Centre. (2008, November). *Climate Change and Children: Human Security Challenge.* Retrieved February 6, 2016, from UNICEF: http://www.unicef-irc.org/publications/pdf/climate_change.pdf

UNICEF Philippines. (n.d.). *Timeline*. Retrieved from United Nations Children's Fund: http://www.unicef.org/philippines/8935_10148.html

Yavuzer, H. (1997*). Resimleriyle Çocuk*, Ġstanbul: Remzi Kitabevi.

Yilmaz, Z., Kubiatko, M., & Topal, H. (2012). Czech Children’s Drawing of Nature. *Educational Sciences: Theory & Practice - Special Issue* , 3111-3119

Contact email: geritolentino.slsu@gmail.com
gerimaeasactatolentino@gmail.com

Exploring CLIL Tasks in EFL Classrooms: Development of Mock English Television Advertisements for Raising Intercultural and Media Awareness

Mariko Takahashi, Setsunan University, Japan

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract
This study aimed to investigate the effects of having Japanese university students create mock English television advertisements as a CLIL (Content and Language Integrated Learning) task for developing intercultural and media awareness in English communication classes. After a preliminary study in a different class, an advertising development task was introduced as a part of the unit on international business. Specifically, 32 students from two EMI English communication classes in a soft CLIL setting participated in the study. They first learned about cross-cultural differences in advertisement as well as related vocabulary and expressions. They then planned, shot, and edited in pairs a mock television advertisement of a Japanese product for an American audience, followed by discussion and feedback. For 10 different products such as Japanese sweets and green tea, 16 mock television advertisements were produced in total. The advertisements along with the discussion sheets were analyzed qualitatively from three perspectives: linguistic expressions used in the advertisements and other expressions learned in the class (language), the types and contents of the advertisements including comparison with television commercials of the same product aired in Japan (contents), and others such as students' feedback. The students were able to develop a range of creative and well-edited mock English advertisements, carefully considering the target audience by integrating techniques such as comparative advertising. The results showed that this task can be an engaging way to help raise EFL university students' intercultural and media sensitivity, having them learn relevant English terminology and expressions at the same time.

Keywords: English education, CLIL, EFL, communicative task, authentic material, intercultural awareness, advertisement

iafor
The International Academic Forum
www.iafor.org

Introduction

The importance of using authentic materials has been emphasized in English education as they reflect English used in the real world (Ciornei & Dina, 2015; Gilmore, 2007; Hwang, 2005). Nunan, in early 1990's, observed that "the introduction of authentic texts" had been one of the cores of the communicative approach to language teaching (1991, p. 279). The concept of authenticity has continued to play an important role in English classrooms, and authenticity is considered as one of the key features of content and language integrated learning (Mehisto, Marsh, & Frigols, 2008, pp. 29-30). Content and language integrated learning (CLIL) is defined as "a dual-focused educational approach in which an additional language is used for the learning and teaching of both content and language" (Mehisto et al., 2008, p. 9). The present study was conducted in English communication classes in Japan which followed a CLIL syllabus. Japan is an EFL context, that is, English is primarily learned as a foreign language with limited amount of communication in English outside the classroom (Seargeant, 2009, p. 60). In Japan, the CLIL approach has gained popularity in the past several years as the increase in the number of publications on CLIL indicates (Takahashi, 2019, pp. 307-308).

Topics related to international business often appear in English textbooks used in Japan (e.g., Beglar & Murray, 2016; Kisslinger, 2009; Shishido, Murphy, & Takahashi, 2020), and this topic can be taught with a CLIL approach (Baranova, Kobicheva, & Tokareva, 2019; Contero Urgal, 2019). Advertisements are closely tied to business. They have been used as authentic materials in EFL classrooms (Picken, 1999). For example, Patahuddin, Syawal, and Bin-Tahir (2017) observed that reading English advertisements was considered as a method of acquiring English vocabulary among EFL students (p. 134). English advertisements have also been used as a part of a pedagogical linguistic landscape project. Rowland (2013), for instance, had Japanese university students analyze English used on advertisements in Japan and pointed out the positive effects of the task on developing students' multimodal literacy skills, pragmatic competence, and multicompetence.

People are exposed to advertisements on a daily basis on various media including television programs, newspaper, magazines, the internet, signboards, and digital signage displays. Preferred styles of advertisement differ between cultures. For example, comparative advertisement has been more widely used in the United States compared to Asia (Muk, Chung, & Chang, 2017). Comparative advertisement was defined by the Federal Trade Commission as "advertising that compares alternative brands on objectively measurable attributes or price, and identifies the alternative brand by name, illustration or other distinctive information" (1979). It has been one of the frequently investigated topics in the literature on advertising including intercultural comparison (e.g., Beard, 2018; Kim, Jeong, & Hwang, 2018; Putrevu & Lord, 1994).

Researchers on intercultural theories have identified characteristics of different cultural groups. One of the influential models has been the cultural dimensions theory developed by Hofstede (1980, 1984), in particular the individualism-collectivism dimension. Another influential model has been the context theory proposed by Hall (1976). Hall (1976) observed that different cultures are associated with different

styles of communication depending on the degree of reliance on the context. More specifically, high-context cultures are associated with indirect and implicit communication styles, whereas low-context cultures are associated with direct and explicit communication styles. Cultures can be conceptually categorized along the continuum from high-context to low-context, and based on Hall's model, studies such as Rosenbloom and Larsen (2003) have categorized and placed countries along the continuum. Hall's model has not always been fully supported; for example, Gudykunst, Matsumoto, Ting-Toomey, Nishida, Kim, and Heyman (1996) developed a measurement for assessing the degree of contexting and pointed out that the level of contexing is more closely related to the individual than the culture as a whole (p. 539). A systematic review of cross-cultural research has also shown that studies have classified countries differently (Kittler, Rygl, and Mackinnon, 2011, p. 75). Nevertheless, the context theory has been widely adopted in the literature on intercultural business and technical communication, according to Cardon (2008).

As such, research on advertisements has looked into effectiveness of various types of advertisement in cultures with different characteristics based on models including the context model. Donthu (1998) compared attitudes toward comparative advertisements in the USA, Canada, UK, and India. The study showed that the recall rate was high with comparative advertisements regardless of the country, but attitudes to them tended to be negative in UK and India, where comparative advertisements were not common at that time. Liang and Kale (2011) found that the amount of image generation differed between Americans and East Asians depending on the concreteness of the advertisement. Hornikx and Le Pair (2017) then observed that complex advertisements were preferred by people from higher-context cultures. Kim et al. (2018) pointed out that comparative advertisements tended to elicit more positive responses from Americans than from Koreans, indicating a more favorable reception of this type of advertisement in low-context, individualistic cultures. However, Muk, Chung, and Chang (2017) had Taiwanese and American consumers evaluate direct comparative, indirect comparative, and non-comparative advertisements and found that Taiwanese consumers showed a higher level of purchase intention after viewing direct comparative advertisements as well as non-comparative advertisements, possibly due to a novelty effect (p. 114).

Results have not been conclusive regarding the effectiveness of different types of advertisements, however, Teng, Ye, Yu, and Wu (2014) have shown that advertisements which integrate cultural characteristics "congruent with the cultural values of its target market" can elicit favorable attitudes (p. 293). It is understandable that advertisements reflect different cultural values since the main purpose of advertising is to promote and sell products. Therefore, learning about advertisements of other cultures is likely to help university students become aware of cultural differences in a concrete manner. This means that they can be used as authentic materials in EFL classrooms combined with English language learning for raising intercultural awareness. Moreover, they can also be used for raising media awareness by having students analyze advertisements on different media and by having them actually develop mock advertisements using their smartphone and editing applications. Having students produce videos in the target language has been a technique used in EFL classrooms (e.g., Huang, 2015). Accordingly, the purpose of the present study is to investigate the effects of having Japanese university students create mock English

television advertisements as a CLIL task for developing intercultural and media awareness in English communication classes.

Methodology

The main part of the task was to have participants plan, shoot, and edit a mock television advertisement for an American audience. A preliminary study was first conducted in a different classroom of 20 students. Based on the preliminary study, the target audience was modified from an "international" audience to an "American" audience to make it more culturally specific. The reason for choosing the American audience as the target was that American culture has been regarded as a low-context culture in contrast to Japanese culture, which has been regarded as high-context (e.g., Rosenbloom and Larsen, 2003). American culture has also been associated with comparative advertising (e.g., Muk et al., 2017), and as American products are widely sold in Japan, participants would have some familiarity with American culture. It was not necessary to assess participants' knowledge on American culture because the task fulfilled its purpose as long as participants aimed their mock advertisement for a culturally different group of audience. The task was also changed from a group task to a pair task in order to have all participants closely engage in the task.

Participants

In the main study, 32 Japanese university students from two English communication classes participated. Twenty of them were first-year students, and the rest were second-year students. Both classes followed a CLIL syllabus, and the first-year class was labeled as upper-intermediate and the second-year class was labeled as advanced. The main medium of instruction was English in both classes. These classes were taught by an English language teacher, with the primary aim of developing students' language skills. This means that the classes fell under the weak/ soft CLIL approach, not the strong/ hard CLIL approach whose primary focus is on contents, according to the classification by Ikeda (2013, p. 32).

Materials

The task was conducted as a part of the classes on international business. There were assigned textbooks to the classes by the department of the university, and the instructor had already spent at least two classes on the unit and related activities including vocabulary, listening, note-taking, discussion, and reading exercises. Namely, the first-year students had finished Unit 7 "Team Building" from *Contemporary Topics 2* (Kisslinger, 2009, pp. 62-71) and the second-year students had finished Unit 4 "Core Business Skills" from *Contemporary Topics 3* (Beglar & Murray, 2016, pp. 32-41). For the task itself, four materials were prepared: slides for introducing the topic, products for making advertisements, a worksheet, and a discussion sheet.

Procedure

First of all, participants learned about cross-cultural differences in advertisement along with examples. Second, they learned vocabulary and expressions on advertising. PowerPoint slides prepared by the instructor were used for these two steps (see the

results section for more detail of the slides). Third, participants were divided into pairs and assigned a Japanese product by lottery. The instructor gave the actual products to participants so that they could use them however they wanted in the mock advertisement. Fourth, they planned and shot a mock television advertisement for an American audience. Fifth, they edited the advertisement on their smartphone by using editing applications. They then discussed the task and its implications in the pair. Finally, as a class, participants viewed the mock advertisements together, voted on the best advertisement, and gave feedback to each other.

On the worksheet, participants were asked to write and draw a rough outline and pictures of their mock advertisement. There were three discussion questions, and participants had to summarize and write down what they talked about on the discussion sheet. The first question asked them what was special about their advertisement. The second question asked them how they would change their advertisement if it was for an international audience instead of an American audience. The third question asked them to write comments and suggestions to the task itself.

Ten Japanese products were prepared for the main task: Ilohas water (producer: CocaCola Japan), Iemon green tea (Suntory), Pure gummy candy (Kanro), Pocky chocolate snack (Ezaki Glico), Milky candy (Fujiya), Jagarico fried potato snack (Calbee), Soyjoy cereal bars (Otsuka), “Consommé double punch” potato chips (Calbee), Sarasa pens (Zebra), K-coat highlighters (Tombow). They could be categorized into beverages, sweets, snack, and stationery.

Results and Analysis

The participants learned intercultural differences in advertising as well as advertising language in the first part of the task. In the main part of the task, 16 mock television commercials were developed. The advertisements along with the worksheets and discussion sheets were analyzed qualitatively from three perspectives: linguistic expressions used in the advertisements as well as other expressions learned in the task, the types and contents of the mock advertisements, and others such as comments from the participants. The words “advertisement” and “commercial” are used interchangeably in the following sections. The students gave the author permission to use the data and images anonymously in this paper.

Linguistic Aspect

In the first part of the task, the participants learned linguistic expressions related to advertising and also learned about cross-cultural differences in advertising. This means that there was some explicit learning on vocabulary and expressions on advertising. The vocabulary list included key words such as agency, budget, campaign, audience, brand image, copywriter, sponsor, visual appeal, and zapping. The students also looked at examples of American advertisements on different media and learned about expressions used in them such as “it’s the real thing,” “a new kind of..,” “buy one get one free,” and “Have a…” More specifically, the instructor for example showed Coca Cola posters from different periods of time and asked the students to put them in a chronological order by paying attention to the phrases and images on the posters. They also watched television commercials aired on the Super Bowl day in 2018 and 2019.

The participants then looked at American and Japanese advertisements on the same or corresponding products and tried to identify similarities and differences. Examples included television commercials on smartphones and pet food as well as posters on automobiles, hamburgers, coffee, and fruit juice. For instance, the participants compared a car advertisement produced by a leading Japanese automobile company in Japan with an advertisement produced by its branch office in the United States of America. The Japanese version highlighted safety functions of their new cars as ordering a course rather than ordering a la carte, featuring pictures of French-style dishes arranged in the shape of a car. The American version, on the other hand, featured a large picture of the advertised car with a detailed description. Through comparison like these, the students learned not only the linguistic expressions used in advertisement but also concepts used to explain intercultural differences in advertising such as comparative advertisement, high-context, indirect communication style, and low-context, direct communication style.

The students then planned a mock television advertisement, drew an outline on the worksheet, and then shot and edited it in pairs as the main part of the task. The average number of tokens was 27.3. The instructor had told the students to aim for 15 seconds because that was the average length of short television commercials. The preliminary study had also shown that it was the maximum length they could work on within one class. The average length of the mock advertisements by first-year students was 14.2 seconds (21.1 tokens on average). Second-year students, however, developed somewhat longer mock commercials, averaging 22.8 seconds (37.7 tokens on average). Three examples of mock television commercials are given below in italics. The instructor did not correct grammatical mistakes during the task unless asked by the participants because she wanted to assess what they were capable of doing without detailed language assistance.

The first example is on strawberry Pocky, strawberry flavored chocolate snack. *It was born from one strawberry. It grew up juicy, crunch, delicious.. Pocky! Do you wanna try this new texture? Let's take Pocky your home!* Figure 1 shows the outline of this mock advertisement. The package of the product and its brand name are hidden for copyright protection. This mock advertisement emphasized the strawberry flavor by gradually increasing the number of strawberries on the screen in tune with the narration and background music, and it was voted the best commercial in the first-year class. The second example, also from the first-year class, is on a ballpoint pen. A ballpoint pen is called a "ball-pen" in Japanese. *This is a ballpen. Name is SARASA. Color is blue. Ballpen's size is 0.5. It is water-based ink pen and we can write smoothly. Let's try to use!* The third example is on the same product but by a second-year pair. *Guys! This is a SARASA pen! You have a problem with your pen, don't you? But, if you use a SARASA, I'm sure you can finish your task sooner! This is, 100 yen! Can you believe it? This is a SARASA pen! ZEBRA.* The audience highly enjoyed this mock commercial especially because the narrator spoke very fluently, imitating a Japanese-style television shopping program.

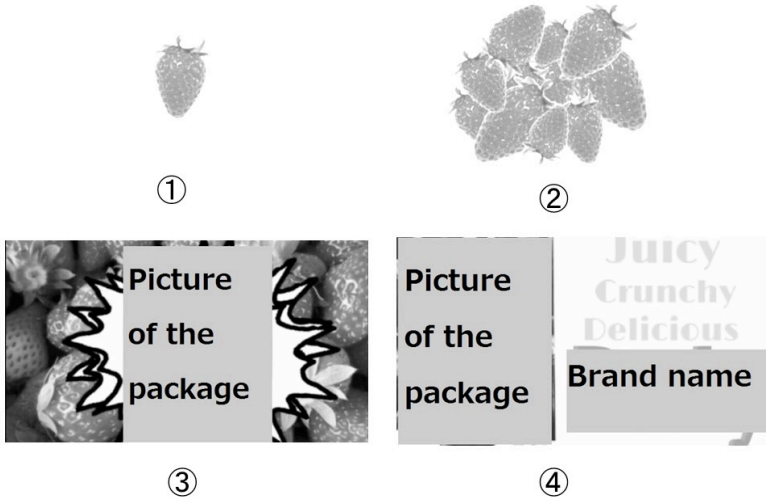


Figure 1. Mock Advertisement on Strawberry Flavored Chocolate Snack

As can be seen in the examples, simple, terse, and clear phrases and sentences were selected. The following example on fried potato snack illustrates this tendency concisely. *Oh, Look! Potatoes, carrots, parsley! They are turned to Jagarico! L size, longer, bigger! It's yummy, so let's try!* The participants carefully chose words to descriptively highlight key features of the product to convey essential information within the short mock advertisement. All of the commercials included and emphasized the product name, and for the three products with a well-known catchphrase in Japan, they included it in their commercials. In addition, 13 mock advertisements had the pronoun "you" in them and used expressions such as "let's try" "you have to buy" to call the audience to action.

Contents

The contents of the mock advertisements could be categorized into three types: information-based, comparative, and story plus information-based types. A few examples are given for each category below. The first category is information-based because the emphasis of the commercials was on giving as much information as possible within 15 seconds. The following example is on bottled Japanese green tea. *Twenty kinds of tea leaves, include tannin, stone miller Matcha, change tea leaves, pesticide check, Iemon tea!* The students who made this crammed main features of the green tea in this short commercial. They used green leaves as the background of the narration and showed the product at the end. The next example is on soft candy. The final phrase is the catchphrase of the product in Japan. *Milky is fragrance free and no coloring. Using particular fresh cream, condensed milk, and milk from Hokkaido! So you can feel rich milk taste and strongly clear sweet taste! No additive, natural flavor! Milky is always mom's taste.* The camera focused on the package and the candy throughout the video.

The second category is comparative. In the following two examples, the advertised product was compared with a product of a competing brand. *There is a special highlighter. In the case of another product. In the case of our product. Let's compare! Our highlighter's features are pen point is strong. Ruler doesn't get dirty. K-coat!*

This was a mock advertisement on a highlighter, and the students directly compared features of the highlighter with those of a competing brand by showing them side-by-side in the commercial (see Figure 2). The following example is on green tea. *Hi, everyone. This is Japanese tea. Green tea comes from Kyoto. Size changed to big: 500 to 600 ml. Once you drink it, you can reduce your body fat. This drink makes you fat, but this, this drink makes you fresh! Get your slim body. Yo, Iemon!* After telling about new features of the product, it was compared with a competing product directly side-by-side in this advertisement as well. The other comparative advertisement was on the ball-point pen mentioned above produced by a second-year pair, and the comparison was indirect without mentioning specific competing brands.

The third category is story plus information-based. For example, the following mock advertisement was on gummy candy. *Pure gummies! Collagen, vitamin C, sweet and sour like youth! You have to buy.* "Sweet and sour like youth!" is the catchphrase of the product in Japan. This mock advertisement featured good friends enjoying the gummy candy on the lawn at a university. The second to the last scene showed the friends making a big heart with their shadows, with the advertised product in the center of the heart (see Figure 3), and the last scene was the picture of a product with a phrase "you have to buy." It contained some information; however, the product was advertised mainly indirectly. Another example of this category was a mock advertisement showing a morning routine of a university student to promote a cereal bar. *It's time for school, but I don't have time, so I eat SoyJoy!* The final example of this category is on potato chips. *Oh, I'm hungry. Hey! Do you wanna eat this together? What is this? This is consomme double punch! Wow, that looks very good. I wanna eat it. Yeah! I wanna eat it too. Thank you. Yaaay. Double flavor makes double friends, double flavor makes double happiness. Yaay. Well, price is not double.* The students were able to use the final phrase, which was not typically in Japanese commercials, but this advertisement focused on friends enjoying the chips and did not give a detailed information on the product compared with the other advertisements.

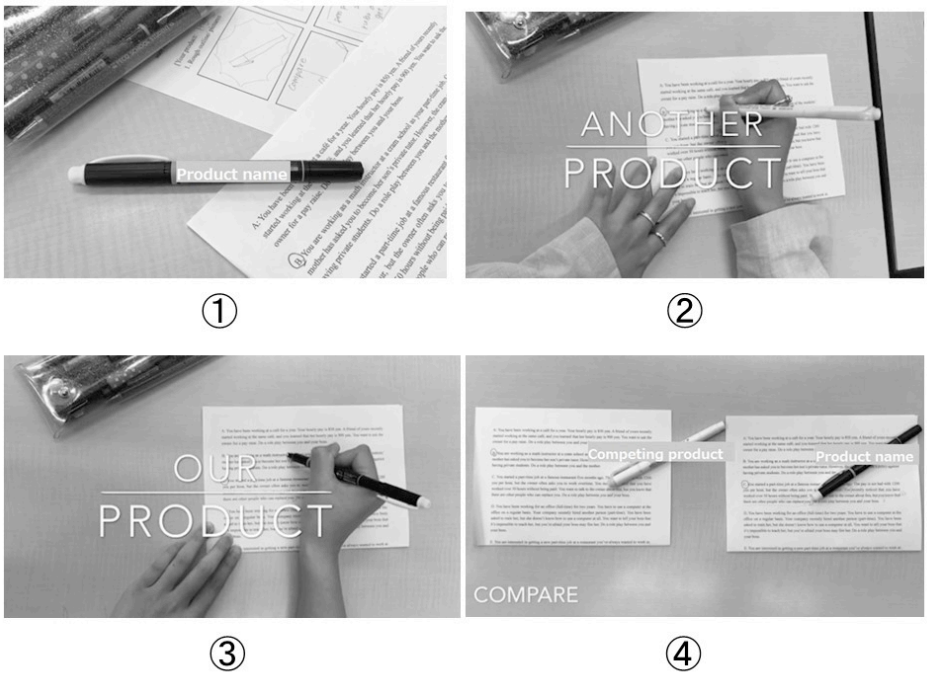


Figure 2. Comparative Mock Advertisement on a Highlighter

Figure 3. Scene from a Mock Advertisement on Gummy Candy

Out of the 16 mock commercials, 10 were information-based, three were comparative, and three were story plus information-based. The comparative mock advertisements were all developed by second-year students. The participants had to aim for the American audience, and they had learned at the beginning, that American advertisements tended to be more explicit and direct than Japanese advertisements. However, in order to see if they actually had the American audience in mind, the author checked the television commercials of the same products in Japan which were airing around the same time when the task took place. Out of the 10 products, commercials for six products were story-based. In other words, the information was only given indirectly in stories which almost sounded irrelevant to the product. For example, the 30 second commercial on green tea had three people talking about life in front of a Japanese traditional house, and the product itself did not appear in the advertisement until one of them started drinking green tea toward the end. Commercials on three products were music or rhythm-based, that is, they simply repeated the product name many times without further information. There was one information-based commercial, but it was only online, and not aired on television. These dramatic differences show that the participants intentionally chose different advertisement types for the American audience.

The target media was television, and 10 mock advertisements had background music. They were all developed by first year students, who spent more time on editing compared to second year students. Fourteen advertisements had the product name and/or company name at the very end to leave a clear impression of the product on the audience. It also shows that the students were conscious about the format of television commercials. Popular editing applications were InShot, iMovie, and TikTok as all the participants were iPhone users. By editing their videos, they had to consciously choose what to include and what not to include in their final product. They also had to use their editing skills to make the mock advertisements look like real television commercials as much as possible.

Others

After completing the mock advertisement, the participants discussed the task and filled in the discussion sheet. Based on the question asking what was special about

their advertisement, it became even clearer that the students were well aware of the target audience. Keywords included “informative” “clear” and “comparison,” as in “there is more information than the Japanese advertisement,” “it is easy to understand the features of the product,” “it is informative,” and “it compares two products.”

The next question asked how the participants would change their advertisement if the target audience was an international audience rather than an American audience. This turned out to be a difficult question, but the participants gave answers such as “we would like to change it funnier and more creative” and “we will include more Japanese elements.” Comments to the task could be classified into two types. Half of the pairs wrote that the task was fun and interesting, and the other half answered that the task was difficult even though they enjoyed it. One pair insightfully observed that the task felt difficult because they had been surrounded by commercials that did not provide a lot of information about the product.

Discussion

The purpose of this study was to assess the effects of having Japanese university students develop mock television commercials as a CLIL task in a soft CLIL setting. The students who participated in this study were able to design and produce a creative mock advertisement that could convey information clearly, concisely, and directly regardless of the product they were assigned. Based on what they learned in the first part of the task, they were able to develop an advertisement that was different from what they were used to seeing in Japan by using techniques such as comparative advertising.

The data have shown that the task can cover the 4Cs of CLIL as outlined by Mehisto et al. (pp. 29-30). Cognition: The participants gathered information on the product, thought creatively and made a plan, and then assessed their video and edited it carefully. They then analyzed their final product objectively and discussed the task. Content: The participants engaged in a task based on daily life by using authentic materials. Communication: The participants learned linguistic expressions and concepts related to the topic in English as scaffolding. Based on what they learned, they planned a mock advertisement and carefully chose expressions to convey the information effectively. Community: The participants became aware of cultural differences by developing a mock advertisement for people in a different community. They also worked collaboratively with classmates in a safe, friendly learning environment.

This task was a part of the English class on international business, and it became clear that the task can help raise intercultural awareness and media awareness. For raising intercultural awareness, the students were taught about cultural differences on advertising along with necessary vocabulary and expressions through analytical activities. They then put the knowledge into practice by developing a mock television advertisement intended for a target audience from a different culture. After making the advertisement, they reflected on the task together and further discussed cultural differences. For raising media awareness, the students were first asked to look at advertisement on different media and learn how information was represented. They then used their smartphone and shot and edited a mock television commercial. They

had to consciously make choices about what to include in the video and also discussed the advertisements with their classmates.

In other words, the main strength of the task included raising awareness on cultural differences and media awareness in an engaging way by promoting active, creative, and cooperative learning. As a CLIL task, it was effective to include an explicit instruction on related concepts and English expressions to make sure the students paid attention to linguistic forms as well. It is also possible to tailor the task to classrooms of different English levels, for example, by adjusting the target length or by introducing additional reading or listening activities before the main part of the task. On the other hand, the task presupposes students' information and communication technology skills as well as the availability of the devices and applications. As this task requires cooperation between classmates, it may only work in a class with a friendly and autonomous learning environment with motivated students. There is also the risk of over-generalization of cultures, and instructors should tell students about individual differences as well.

Conclusion

In conclusion, having students develop a mock television advertisement for an audience from a different culture can be an engaging university-level CLIL task combined with explicit instruction on concepts and relevant English vocabulary and expressions. By planning, shooting, and editing a mock advertisement with classmates, students can consciously think about intercultural differences and become aware of how information is represented in different types of media.

To improve this task, instructors could spend more time on the explicit instruction part to further promote language learning. For lower-level classes, more language support would be necessary to help with the accuracy of English. It is also possible to make the mock advertisements longer to have students produce more English. In this study, the mock advertisements were viewed by their classmates and the instructor. As the purpose was to have students become aware of intercultural differences, it was not actually necessary to show the mock advertisement to the assumed target audience. However, to make the task more authentic, it would be helpful to have the target audience watch the mock advertisements and give feedback to students.

This CLIL task integrated authentic materials to have students think about real life situations outside the classroom. By using authentic materials students are familiar with, this CLIL task became engaging and effective. Tasks with authentic materials would help students learn the target language and contents in a relevant and active manner regardless of the topic. Accordingly, it would be necessary to continue to conduct further research on CLIL activities and tasks for various topics at the tertiary level in EFL contexts.

Acknowledgements

I would like to extend my thanks to the audience of SEACE2020 for their insightful questions, comments, and suggestions.

References

Baranova, T. A., Kobicheva, A. M., & Tokareva, E. Y. (2019). Does CLIL work for Russian higher school students?: The Comprehensive analysis of Experience in St-Petersburg Peter the Great Polytechnic University. In *Proceedings of the 2019 7th International Conference on Information and Education Technology* (pp. 140-145). ACM.

Beard, F. (2018). C*omparative Advertising: History, Theory, and Practice*. Maryland: Rowman & Littlefield.

Beglar, D. & Murray, N. (2016). *Contemporary Topics 3* (4th ed.). New York: Pearson.

Cardon, P. W. (2008). A critique of Hall's contexting model: A meta-analysis of literature on intercultural business and technical communication. *Journal of Business and Technical Communication, 22*(4), 399-428.

Ciornei, S. I., & Dina, T. A. (2015). Authentic texts in teaching English. *Procedia-Social and Behavioral Sciences, 180*, 274-279. Retrieved from https://www.mdpi.com/2226-471X/4/2/45

Contero Urgal, C. (2019). Law and Business Students' Attitudes towards Learning English for Specific Purposes within CLIL and Non-CLIL Contexts. *Languages, 4*(2), 45.

Donthu, N. (1998). A cross-country investigation of recall of and attitude toward comparative advertising. *Journal of Advertising, 27*(2), 111-122.

Federal Trade Commission (1979). Statement of policy regarding comparative advertising. Retrieved from https://www.ftc.gov/public-statements/1979/08/statement-policy-regarding-comparative-advertising

Gilmore, A. (2007). Authentic materials and authenticity in foreign language learning. *Language Teaching, 40*(2), 97-118.

Gudykunst, W. B., Matsumoto, Y., Ting-Toomey, S., Nishida, T., Kim, K., & Heyman, S. (1996). The influence of cultural individualism-collectivism, self construals, and individual values on communication styles across cultures. *Human Communication Research, 22*(4), 510-543.

Hall, E. T. (1976). *Beyond culture*. New York: Anchor Books/ Doubleday.

Hofstede, G. (1980). Motivation, leadership and organization: Do American theories apply abroad? *Organizational Dynamics, 9*(1), 42-63.

Hofstede, G. (1984). *Culture's consequences.* Beverly Hills, CA: Sage Publications.

Hornikx, J., & le Pair, R. (2017). The influence of high-/low-context culture on perceived Ad complexity and liking. *Journal of Global Marketing*, *30*(4), 228-237.

Huang, H. C. (2015). The Effects of Video Projects on EFL Learners' Language Learning and Motivation: An Evaluative Study. *International Journal of Computer-Assisted Language Learning and Teaching, 5*(1), 53-70.

Hwang, C. C. (2005). Effective EFL education through popular authentic materials. *Asian EFL Journal, 7*(1), 90-101.

Ikeda, M. (2013). Does CLIL work for Japanese secondary school students? Potential for the 'weak' version of CLIL. *International CLIL Research Journal, 2*(1), 31-43.

Kim, S., Jeong, S. H., & Hwang, Y. (2018). Why are there cross-national differences in response to comparative advertising?: Some mediators. *Journal of Marketing Communications*, *24*(6), 569-587.

Kisslinger, E. (2009). *Contemporary Topics 2* (3rd ed.). New York: Pearson.

Kittler, M. G., Rygl, D., & Mackinnon, A. (2011). Beyond culture or beyond control? Reviewing the use of Hall's high-/low-context concept. *International Journal of Cross Cultural Management, 11*(1), 63-82.

Liang, B., & Kale, S. H. (2012). Cultural differences in imagery generation: The influence of abstract versus concrete thinking. *Journal of Business Research, 65*(3), 333-339.

Mehisto, P., Marsh, D., & Frigols, M. J. (2008). *Uncovering CLIL content and language integrated learning in bilingual and multilingual education.* London: Macmillan.

Muk, A., Chung, C., & Chang, E. C. (2017). The effects of comparative advertising on young consumers' perceptions: Cross-cultural comparison between the United States and Taiwan. *Journal of Promotion Management*, *23*(1), 100-122.

Nunan, D. (1991). Communicative tasks and the language curriculum. *TESOL quarterly, 25*(2), 279-295.

Patahuddin, P., Syawal, S., & Bin-Tahir, S. Z. (2017). Investigating Indonesian EFL Learners' Learning and Acquiring English Vocabulary. *International Journal of English Linguistics, 7*(4), 128.

Picken, J. (1999). State of the ad: The role of the advertisements in EFL teaching. *ELT Journal, 53*(4), 249-255.

Putrevu, S., & Lord, K. R. (1994). Comparative and noncomparative advertising: Attitudinal effects under cognitive and affective involvement conditions. *Journal of Advertising, 23*(2), 77-91.

Rosenbloom, B., & Larsen, T. (2003). Communication in international business-to-business marketing channels: Does culture matter? *Industrial Marketing Management, 32*(4), 309-315

Rowland, L. (2013). The pedagogical benefits of a linguistic landscape project in Japan. *International Journal of Bilingual Education and Bilingualism, 16*(4), 494-505.

Seargeant, P. (2009). *The idea of English in Japan: Ideology and the evolution of a global language*. Bristol: Multilingual Matters.

Shishido, M., Murphy, K., & Takahashi, M. (2020). *AFP world news report 5: Achieving the sustainable development goals (SDGs)*. Tokyo: Seibido.

Takahashi, M. (2019). Exploring communicative activities in EFL classrooms: Can development of CLIL lesson plans work as a communicative task for university students? In *The Asian Conference on Language Learning 2019: Official Conference Proceedings*, (pp. 305-317). Nagoya: The International Academic Forum. Retrieved from https://papers.iafor.org/proceedings/conference-proceedings-acll2019/

Teng, L., Ye, N., Yu, Y., & Wu, X. (2014). Effects of culturally verbal and visual congruency/incongruency across cultures in a competitive advertising context. *Journal of Business Research*, *67*(3), 288-294.

Contact email: mariko.takahashi@ilc.setsunan.ac.jp

The Structural Equation Modeling of Human Resource Development Affecting Internationalization of Private Schools

Sakdipat Krishanachinda, Khon Kaen University, Thailand
Kanokorn Somprach, Khon Kaen University, Thailand
Prakittiya Thaksino, Khon Kaen University, Thailand

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract
The purposes of this study were to develop and examine the goodness-of-fit of the model of Human Resource Development factors affecting the Internationalization of Thai private schools developed by the researcher with empirical data. There were 658 samples of research conducted from private schools in Thailand. The factors were found as a result from thorough literature review and were confirmed by 5 academic experts through in-depth interview. The findings showed that 1) there are 4 key factors of Human Resource Development; (1) Knowledge Management (2) Strategic Human Resource Management (3) Diversity Management and (4) Learning Partnership and 2) there are 5 key factors of Internationalization of Thai private schools; (1) Internationalized Personnel (2) Integration of Internationalized Curriculum (3) Pedagogy of World Languages (4) Expanding Students' International Experiences (5) Harnessing Technology to Expand International Network. Multi-stage random sampling were used to analyze the data. The results showed that a Structural Equation Modeling of Human Resource Development factors affecting Internationalization of Thai private schools was consistent with the empirical data.

Keywords: Human Resource Development, Internationalization, Private Schools, Mixed Method Approach

iafor
The International Academic Forum
www.iafor.org

Introduction

In the present world where rapid changes to the competitiveness of human talent together with the use of more advanced technology is posing challenges to Thai Education Administration system in order to follow the society of international standards. Globalization in the 21st century has forced organizations to change especially in the education sector where the impact has been vast because it prepares for the new generation to become world citizens in the new era. World citizens need to be equipped with handling of the connection between countries or regions through the use of internationalized knowledge and skills which was taught under the local education system to adapt to others understanding in an international awareness. So schools needed to have adequate human capital or human resource to create students to prepare for new globalized environments where the evolution of change happens through data and technology that is far-reached and rapidly changing. Moreover, the changes affect the world's education, economy and culture sections through more effective communication means with the use of English language to conduct business in the current international capitalist and political world.

Today's educational system is a system that has been integrated through the control in achieving objectives that connects knowledge to each other wherever the knowledge may come from. Furthermore, organizations bring understandings and knowledge from various sources to further develop into new knowledge. These knowledge consist of knowledge from the people within that organization that is the new education system that has been implemented in today's world overpassing the barriers of culture and creating new identity of internationalization. The uniqueness of the new creation is called 'Borderless Education' where it is defined as the administrative functions comprises of Vision, Discipline and Geography. Borderless Education is aligned with Cross-Border Education where the difference is that Cross-Border Education doesn't restrict one to seek knowledge in another area where Borderless Education insist on border areas but acknowledges knowledge in those areas. Both words have been used in 21st century education that uses online education technology or E-Learning as the main method so that Geographic challenges no longer poses a threat to seeking new knowledge. The role of educational administrators is to relax rules, regulations and responsibilities, maintain quality control, allocate sufficient budget and support the use of E-Learning in schools to further develop Borderless Education. So, Internationalization has become to main part to support Borderless Education where locally, internationalization is used in terms of integration and creating new knowledge where students use Borderless Education as means to find out new knowledge which eventually would lead to a life-long internationalized education that is continuous. The learning process of this has 3 main functions which are data, process and results where the best results reflect the need of the society. The benefits of creating an internationalized school was inspired to push students to develop themselves as world citizens whose capable of having an internationalized thoughts, understanding of culture and problems that arises in other countries. World citizens are capable of developing networks that could develop in social and emotional skills. The schools are henceforth capable of maximizing revenue as internationalized curriculums are value-added services in which extra funds are available to further develop the school into a sustainable organization (Hayle, 2008). The positive thoughts of turning a localized school into an internationalized school is to develop its own curriculum to match global needs and to improve efficiency. The

personnel and students in developing countries will benefit greatly from an international point of view where internationalized schools personnel will create new cultures, cultures which are more modern and global. Furthermore, it will create diversity to the existing culture and to the stakeholder within the community which will intern, improve the nation as a whole. The change of thoughts, missions, visions and policies within the school will happen from personnel and students to change the behavior in the society and to understand the world society in order for them to be able to adapt to the 21st century world.

The problem with the current education system leading towards internationalization in Thailand is the lack of cooperation. The indicators of educational administration leading to a Knowledge-Based Economy is still in need of major improvements where current citizens need to face the challenges of capitalism. The order of business in Thailand and people whom seek profit overlook the deteriorating of natural resources and environment. This can be seen from unforeseen natural disaster that reflected in the new generation to face challenges that has never seen before. With this, there are many countries around the world including Thailand needing to follow an internationalized guideline to help the new generation become world citizens. Thailand has initiated an educational transformation in 2009 where the focus of the system is involved with life-long learning together with adapting skills to blend into society and internationalized culture. Teachers in schools are crucial to passing on the knowledge to these learners to help them develop themselves and become professional teachers focusing in internationalized studies. The educational administration system involves objective to serve an internationalized purpose where skilled human resources are necessary to achieve this especially teachers that has the traits of internationalized skills. This will be measured by the outcome of the students where teachers play a huge role in designing curriculum and activities to achieve goals. Moreover, the problem with human resource management in private schools in Thailand involves the lack of efficiency and effectiveness, tiredness from working in a bureaucracy society which intern leads them to not fully function at full capacity. The teachers with enthusiasm are drawn into the boredom of standardized national curriculum which makes the quality of the education system as a whole worsened. So from time to time, this needs to be boosted.

School Administrators and personnel play a key role in leading policy of the schools to practice where the personnel sees the importance of change in order to create understanding, moral, ethics by following the transformation tools to achieve efficiency. The efficiency is created in classrooms where modern techniques are used in various methods where modern methods is the key component in order to affect the efficiency towards improving efficiency. The development of human personnel in schools are therefore the heart of the solution in tackling inefficiency. The human personnel or human resource is the key organizational resource to drive an organization to sustainable development through the use of increase in rules and regulation in order to manage human resources. In modern era, management policies focuses organizational development through new human resource guidelines to specialize personnel in their work area to help increase organization values which was set by administrators. In the past, an organization focuses on changes and job rotation to get personnel to multi-function however, in the modern era, organizations focuses on personnel to specialize in their job and achieve highest efficiency in order to solve solutions with challenging with integration techniques. Modern day Human Resource

Development tends to use organizational level visions from created from within with the purpose to stabilize the survivability of the organization. Human Resource Management therefore tends to focus on recruitment and selection of panel of personnel to use compensation to enhance organizational ability and to maintain/stimulate staffs within the budget set by administrators. The Human Resource Management policies tend to consider organizational efficiency. Managing human personnel is the fundamental aspect of management with key objectives to enhance efficiency in jobs. In schools, coordination of school activities of personnel to increase quality of students is the key objective. To improve the quality of education of students in schools, the management of human resource is therefore the procedure to stimulate personnel to highest efficiency from the first day of recruitment and create a culture to lead these personnel to efficiency operate in roles involving the school.

Solution guidelines in improving efficiency plays a key role in management where the human resource is the key resource in transforming the organization to optimum efficiency and effectiveness. If the personnel has no key skills and are not motivated enough, the development process can never happen. Systems in all levels of education only relies on the use of human personnel to perform operations where teachers in schools are key resource mechanism to truly operate the school towards optimum efficiency. The key factors to drive policies towards success in terms of performance in classrooms where teachers are the interpreter of curriculum and to execute that knowledge with concern of the school's image. The design of the curriculum and teaching techniques are the school's culture in which sustainable development of these techniques are to be constantly improved through teachers. So, teachers are the most important resource in the school. They are the key components and indicators to help the school towards optimum efficiency where the lack of teachers and teachers' management and development will affect the delivery of students' quality which will in turn become the downfall of the school. So, after successfully recruiting new teachers, the school must have Human Resource Development guidelines where the procedure of the development is to enhance knowledge, skills and capability of teachers. The initialization of development happens through educating teachers. It is the key strategy of human development where enhance opportunities are given through learning new skills and knowledge through various training methods. Such development will happen though realization of global dynamics. The factor of initialization including change of technology will lead to creating balance to sustainable internationalization development. The creation of new internationalized networks, training and exchange of knowledge in the international professional communities from other countries will change the context of school's development plans to a higher standard.

Finally, the result of Human Resource Development towards internationalization is the quality of students. Competencies of personnel at global level responses to the demand of workforces domestically and internationally. The ability for students as world citizens that can shift the labor force of the world is therefore pinnacle to teachings. The key skills of adaptation and the response to basic knowledge of global politics, economy, social, cultural and globalization through the shifting forces of information, technology and communication to create competitiveness. The implementation of education is the key mechanism in change. To share, help and collaborate Human Resource Development plans towards internationalization to

enhance students' skills through exchange of cross-cultural experiences in development of education and preparing them to wards universities and the labor market which must be the key mission for schools to set. So, private schools must use the Human Resource Development guidelines to enhance efficiency to match other schools globally where human resources are the key mechanism of the school. The purpose of these personnel is to execute the management guidelines to help the school creating personnel with the best talents to get through future challenges and provide solutions for students to prepare to the changing world. These personnel can support the education of students and develop the school's efficiency. Moreover, to make the step towards internationalization, global changes will bring new cultures of human resource where diversity will create new knowledge to students to equip them with further global skills. So the school must value and recognize this diversity to embed them into administrative procedures and guideline to create harmony in working environments which will result in the quality of students.

Literature Review

Scope of Literature Review

The scope of this study is to analyze and synthesize documents and research in relation to Human Resource Development and Internationalization of Thai Private Schools (Krishanachinda, 2019) which resulted in the following factors;

The components of Internationalized School that suggests that there are 5 major components which consist of;

1. Internationalized Personnel
2. Integration of Internationalized Curriculum
3. Pedagogy of World Languages
4. Expanding Students' International Experiences
5. Harnessing Technology to Expand International Network

The main components and indicators of Human Resource Development suggest that there are 4 main components of Human Resource Development which are;

1. Knowledge Management
2. Strategic Human Resource Management
3. Diversity Management
4. Learning Partnership

Research Objective

Based on the previous literature review above, the objectives of this research are as follows :

1. To examine the relationship between the key factors of Internationalized Private Schools in a structural relationship model.
2. To examine the congruence of the structural model with empirical data.
3. To examine the direct, indirect, and total effects of factors toward Internationalization in Thai Private Schools.

Research Methodology

The researcher adopts a 'Mixed Method' approach to gather and analyze qualitative and quantitative data from the research tools to explore the research problems. The researcher collects data to achieve sequential explanatory data collection process. The qualitative data was used from experts in the field of Education Administration to create research tools for collecting quantitative data. The quantitative data analysis forming a Structural Equation Modeling (SEM) was adopted from using various statistical data from the Confirmatory Factors Analysis (CFA) approach together with Path Analysis to complete the model in order to explain and interpret the finding of the gathered data (Creswell, 2014).

During the first phase, the researcher thoroughly reviews the literature review which was confirmed by 5 academic experts in the field of Educational Administration consisting of school administrator, leading organization personnel with excellence in Human Resource Development, university scholar, Ministry of Education policy maker and chairman of association of personnel management institute. The research tool in this step uses a semi-structured interview form as an inspection and open-ended questions to find additional information. The research were confirmed and verified by 7 experts recognized in the field of Human Resource Development and Internationalization of Thai Private Schools with a research tool was a 5 rating scale questionnaire confirming the key factors.

The second phase uses a blueprint survey form as a research tool completed by 7 academic experts to compile together a 5-scale questionnaire survey form. The researcher then used the survey form confirmed by academic experts and uses a sample size of 658 private schools from a population of 4,463 private schools in Thailand (data from the Ministry of Education, Thailand). Each school received 2 sets of survey forms where the school director and a teacher are the survey participants making a total of 1,316 samples, the return rate was over 90%. The sample size was determined based on Hair (2010) proposed that suitable sample sizes depend upon the numbers of items available for factor analysis where proper ratio of samples is 20:1 or 20 samples per one parameter. Since there were 26 parameters in this study, the required sample size was at least 520 samples of schools since unit of analysis of this study was school. A multi-stage random sampling method was adopted where the population was classified in to equal provincial locations and uses a stratified random sampling to filter out smaller schools leaving only medium, large and extra-large school. Up on the multi-stage random sampling technique was utilized, the result of the sampling was topped up to 658 schools taken in consideration high non-response rate of around 45% (Baruch & Holtom, 2008).

After the qualitative data was analyzed using confirmation factors analysis and path analysis that affecting Internationalization of Private Schools were identified. This is followed by the analyzation of quantitative data using SEM in order to fit the model with empirical data. SEM adopts a set of complex model fitting statistics and influential path analysis to explain the relationship between variables. It implies a model of structure between the covariance and the observed variables. Confirmation factor analysis was used to validate the congruence of measurement model. Moreover, SEM directs around fitting the structural model by measuring the significance of the relationship between latent variables, which is accomplished through path analysis

(Kaplan, 2000) and CFA was used as a desirable validation stage preliminary to the main use of SEM to identify the causal relations among latent variables (Schumacker & Lomax, 2004).

Research Results

The findings of this study are presented in accordance with the research objectives stated above.

Quantitative findings of factors Affecting Internationalization in Thai Private Schools

Findings from the phase above there were five latent variables in the structural relationship model namely Internationalization in Thai Private Schools, Knowledge Management, Strategic Human Resource Management, Diversity Management, and Learning Partnership. Qualitative findings also indicated that there are 18 observable variables as shown in Diagram 1 below.

Subsequently, findings also showed that each latent variable has its factors as follow; Internationalization in Thai Private Schools (YYX) consisted of Internationalized Personnel (YA), Integration of Internationalized Curriculum (YB), Pedagogy of World Languages (YC), Expanding Students' International Experiences (YD) and Harnessing Technology to Expand International Network (YD). Knowledge Management (XAA) comprised of The Creation of Knowledge (XA1), The use of Knowledge (XA2), Learning Environment and Organization Culture (XA3) and The use of Technology to connect Knowledge (XA4). Strategic Human Resource Management (XBB) comprised of The Planning of Human Resource Management (XB1), Recruitment and Selection of New Personnel (XB2) and Professional Development and Assessment (XB3). Diversity Management (XCC) comprised of Valuing Diversity (XC1), Educating and Communication (XC2) and The Support of Diversity Management (XC3). Lastly, Learning Partnership (XDD) comprised of The Planning of Learning Partnership Management (XD1), The Dedication of Personnel (XD2) and Network Cooperation (XD3). It is noted that Strategic Human Resource Management (XBB) acted as Mediator Variable via Diversity Management (XCC) which is the only difference from the hypothesis model. Moreover, Diversity Management on its own does not have direct influence towards to Internationalization in Thai Private Schools (YYX).

Confirmatory Factors Analysis (CFA) was used to validate at the preliminary stage to identify the causal relationships among the latent variables. Findings related to factor loading values of all the latent variables for Internationalization in Thai Private Schools structural relationship model ranged from 0.226 to 0.695 are statistically significant at 0.01. Factor loading is an important statistical measuring relationship model showing how each variables are influenced by one another where the findings from empirical data had been taken into account.

The factor with the highest factor loading was Recruitment and Selection of New Personnel ($\beta = 0.994$, $R^2 = 0.989$). This second highest factor was Integration of International Curriculum ($\beta = 0.695$, $R^2 = 0.483$). The third variable with the highest factor loading was Learning Environment and Organization Culture ($\beta = 0.664$, $R^2 =$

0.440). The rest of the variables descending from factor loading statistics are as follow; The Planning of Learning Partnership Management (β = 0.653, R^2 = 0.426), Network Cooperation (β = 0.608, R^2 = 0.369), The use of Technology to Connect Knowledge (β = 0.596, R^2 = 0.356), The Planning of Human Resource Management (β = 0.596, R^2 = 0.356), Internationalized Personnel (β = 0.564, R^2 = 0.318), The Use of Knowledge (β = 0.537, R^2 = 0.288), The Creation of Knowledge (β = 0.498, R^2 = 0.248), The Dedication of Personnel (β = 0.480, R^2 = 0.231), Harnessing Technology to Expand International Network (β = 0.474, R^2 = 0.224), Expanding Students' International Experiences (β = 0.435, R^2 = 0.189), Pedagogy of World Languages (β = 0.384, R^2 = 0.148), Valuing Diversity (β = 0.349, R^2 = 0.122), Professional Development and Assessment (β = 0.319, R^2 = 0.099) Educating and Communication (β = 0.208, R^2 = 0.043) and the factor that had the lowest factor loading was The Support of Diversity Management (β = 0.830, R^2 = 0.689) respectively. As a result all the factors of the structural relationship model are found to be important factors for Internationalization in Thai Private Schools.

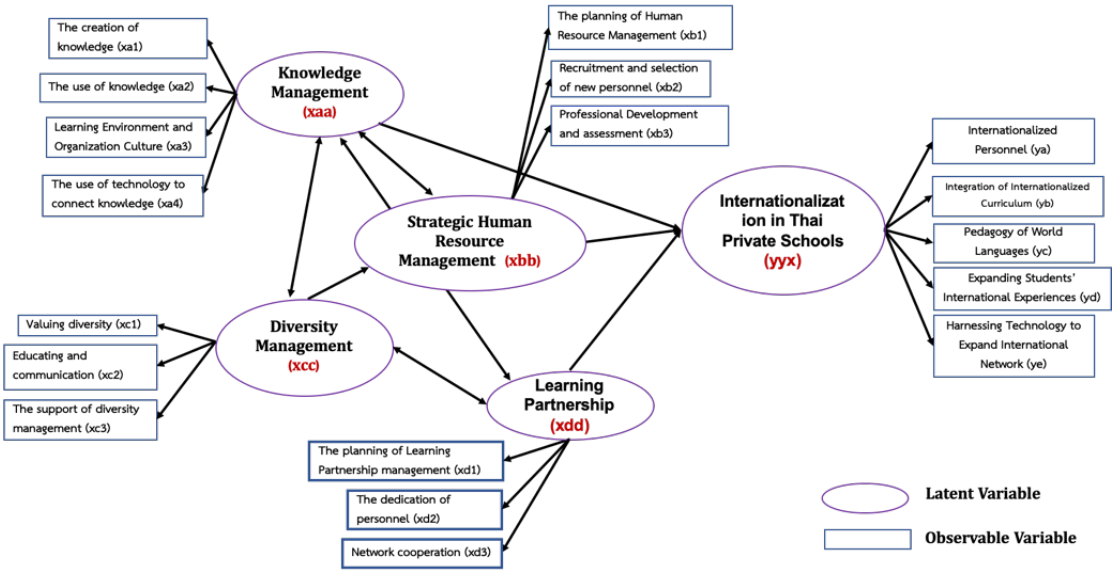


Diagram 1. Factors of Hypothesis Structural Relationship Model

Table 1. Factor loading and validity of latent variables and their related observable variables in the structural relationship model

Latent Variable	Observable Variable	Factor Loading (β)	Factor Loading B (SE)	t	R^2
YYX : Internationalization in Thai Private Schools	YA : Internationalized Personnel	0.564	0.024	23.358**	0.318
	YB : Integration of International Curriculum	0.695	0.021	33.181**	0.483

	YC : Pedagogy of World Languages	0.384	0.029	13.466**	0.148
	YD : Expanding Students' International Network	0.435	0.028	15.781**	0.189
	YE : Harnessing Technology to Expand International Network	0.474	0.026	17.892**	0.224
XAA : Knowledge Management	XA1 : The Creation of Knowledge	0.498	0.026	18.985**	0.248
	XA2 : The Use of Knowledge	0.537	0.025	21.170**	0.288
	XA3 : Learning Environment and Organizational Culture	0.664	0.022	29.967**	0.440
	XA4 : The Use of Technology to Connect Knowledge	0.596	0.024	25.057**	0.356
XBB : Strategic Human Resource Management*	XB1 : The Planning of Human Resource Management	0.596	0.037	16.138**	0.356
	XB2 : Recruitment and Selection of New Personnel	0.994	0.118	8.404**	0.989
	XB3 : Professional Development and Assessment	0.314	0.046	6.898**	0.099
XCC : Diversity Management	XC1 : Valuing Diversity	0.349	0.050	6.927**	0.122
	XC2 : Educating and Communication	0.208	0.037	5.570**	0.043
	XC3 : The Support of Diversity Management	0.122	0.036	3.358**	0.015
XDD : Learning Partnership	XD1 : The Planning of Learning Partnership Management	0.653	0.027	24.590**	0.426
	XD2 : The Dedication of Personnel	0.480	0.029	16.538**	0.231
	XD3 : Network Cooperation	0.608	0.027	22.555**	0.369

***** Strategic Human Resource Management variable acts as a 'Mediator Variable' via Diversity Management variable

***p<0.01*

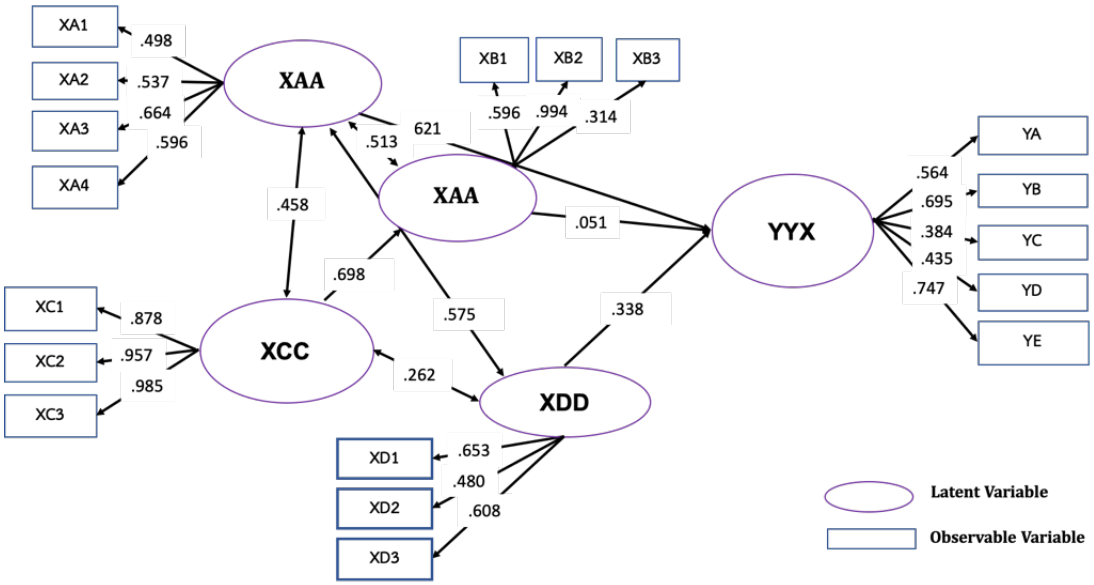


Diagram 2. The Effects of the Structural Relationship Model

Quantitative findings of congruence of the structural relationship model with empirical data

Findings from the correlations between the factors of Internationalization in Thai Private Schools could be assessed in the standard component score (β) which indicated significantly high and positive correlations at 0.01 (data accuracy at 99% confidence level) with the results are showed with comparable benchmarks as follow;

Table 2. Summary of Generally Accepted Model-Fitted Indices Compared with Benchmark.

Generally Accepted Model-Fitted Indices	**Result**	**Benchmark***
Goodness-of-Fit Index (GFI)	0.957	>0.95
Relative Chi-Square (χ^2/df)	1.182	<2.00
P-Value (χ^2)	0.0856	>0.05
Comparative Fit Index (CFI)	0.993	>0.95
Tucker Lewis Index (TLI)	0.991	>0.95
Root Mean Square Error of Approximation (RMSEA)	0.012	<0.07
Standardized Root Mean Square Residual (SRMR)	0.024	<0.08

*Note : References from Kelloway (2015), Schumacker & Lomax (2004), Shama et al (2005), Steiger (2007) and Hox (2010)

The result of analyzation of the data together with the generally accepted benchmarks showed that The Structural Equation Modeling of Human Resource Development Factors Affecting Internationalization in Thai Private Schools were **consistent with empirical data**. This implies that the consistency of factors that affecting Internationalization in Thai Private Schools resulting in descending order would be

Knowledge Management, Diversity Management, Learning Partnership and Strategic Human Resource Managemen. In addition, observable variables of innovation performance was found to be at good level in descending order as such Recruitment and Selection of New Personnel, The Support of Diversity Management, and Educating and Communication of Diversity. Diagram 2 shows the effects of the latent and observable variables in The Structural Equation Modeling of Human Resource Development Factors Affecting Internationalization in Thai Private Schools.

Findings of the direct, indirect, and total effects of factors toward Internationalization in Thai Private Schools

All the latent variables were found to have significant direct and indirect effects toward Internationalization in Thai Private Schools. Table 2 shows the direct, indirect, and total effects of factors toward Internationalization in Thai Private Schools.

Table 3. Direct, indirect, and total effects of factors toward Internationalization in Thai Private Schools

Latent Variables	**Influential Relationship toward Internationalization in Thai Private Schools (YYX)**			**Influential Relationship toward Strategic Human Resource Development (XBB)**		
	Direct Effect	*Indirect Effect*	*Total Effect*	*Direct Effect*	*Indirect Effect*	*Total Effect*
XAA : Knowledge Management	.621**	-	.621**	-	-	-
XBB : Strategic Human Resource Management	.051**	-	.051**	-	-	-
XCC : Diversity Management	-	.036**	.036**	.698**	-	.698**
XDD : Learning Partnership	.338**	-	.338**	-	-	-

***p<0.01*

Conclusion and Discussion

The findings of the empirical data was consistent with the hypothesis model which explained that the Structural Equation Modeling is aligned with empirical data. The findings also revealed that Recruitment and Selection of New Personnel, Integration of International Curriculum and Learning Environment and Organization Culture are the three most valuable variables judging from the statistical Loading Factor measurement. Also, Strategic Human Resource Management acted as Mediator Variable via Diversity Management. This implies that research findings that included Mediator Variable are considered to have higher influence towards the practice in organizations which in turn creates extra value to the research (Karatepe, 2013). It shows that the study of this research is modern enough to be implemented in the 21st century's world when developing policies in the organization (Jiang and Liu, 2017). Moreover, world citizens should be equipped with the Knowledge Creation as well as adaptable Human Resource policy through setting guidelines and developmental plans and put them into practice with a view towards sustainability (Panich, 2012).

Lastly, the success of Internationalization in Thai Private Schools in adopting Human Resource Development in Thailand will require 21st century skillsets to equip school personnel to handle the rapid transformation that the world faces. Private Schools feed on survival through Sustainable Development. To survive, the management needs to adopt a rigorous Human Resource policy as Human Resource is the most valuable resources of the schools and to be able to survive in today connected world, its personnel needed to be equipped with Internationalized skillsets in order to push the organization forward.

Recommendations

Recommendation for implementation

School administrators can apply this model to develop school principle and characteristic to improve their Human Resource Development plans/policies towards a more focused on internationalization.

Recommendation for future researches

Researchers can develop an approach for Developmental policy of Human Resource Development in relation to Internationalized Schools.

Reference

Baruch, Y., & Holtom, B. C. Survey response rate levels and trends in organizational research. Human Relations, 61(8), 1139–1160. 2008

Creswell, J. W. Research design: Qualitative, quantitative, and mixed methods approaches (4th ed.). Thousand Oaks, CA: Sage. 2014

Hair, J.F., Black, W.C., Babin, B.J., & Anderson, R.E. Multivariate Data Analysis. Seventh Edition. Prentice Hall, Upper Saddle River, New Jersey. 2010

Hayle, E.M. Educational Benefits of Internationalizating Higher Education: The Students' Perspectives. Faculty of Education. Queen's University, Kingston, Ontario, Canada. 2008

Hox, J.J. Multilevel analysis: Techniques and applications. Second edition. New York: Routledge. 2010

Kaplan, D. Structural equation modeling: Foundations and extensions. Thousand Oaks, CA: Sage Publications. 2000

Karatepe, O. "High - performance work practices, work social support and their effects on job embeddedness and turnover intentions", International Journal of Contemporary Hospitality Management, Vol. 25 No. 6, pp. 903-921. 2013.

Kelloway, E. K. Using Mplus for Structural Equation Modeling. Thousand Oaks, CA: Sage. 2015.

Krishanachinda, S. Content Analysis of Human Resource Development Factors Affecting Internationalization in Thai Private Schools. The Mattingley Publishing Co., Inc., Oakland, California, Vol. 81 pp. 2575- 2587. 2019.

Jiang, K., Hu, J., Liu, S., & Lepak, D. P. Understanding employees' perceptions of human resource practices: Effects of demographic dissimilarity to managers and coworkers. Human Resource Management, 56(1): 69-91. 2017.

Panich, W. A path to create learning for students in the 21st century. Bangkok, Thailand: Sodsri Salitwongse Foundation. 2012.

Schumacker, R. & Lomax, R. A Beginner's Guide to Structural Equation Modeling, (2nd ed.). Mahwah, NJ: Lawrence Erlbaum. 2004.

Sharma, S., Mukherjee, S., Kumar, A., and Dillon, W.R. "A simulation study to investigate the use of cutoff values for assessing model fit in covariance structure models," Journal of Business Research, 58 (1), 935-43. 2005.

Steiger, J.H. "Understanding the limitations of global fit assessment in structural equation modeling," Personality and Individual Differences, 42 (5), 893-98. 2007.

Contact email: sakdipat@kkumail.com

Engaging Students in the On-Line Discussions in Hybrid Writing Classes

Maria Staton, University of Maryland Global Campus, Japan

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract
The purpose in this paper is to share the author's strategies to increase students' engagement in the on-line discussions of several hybrid writing classes at the University of Maryland Global Campus (UMGC). In regards of the purpose, the paper addresses the following areas: 1. building a classroom community, 2. identifying and correcting writing problems, and 3. building content. The paper concludes that students' engagement in online discussions can be increased if students understand the purpose of discussions, are provided with the standards for discussion posts and responses, only get credit for discussion participation if they revise, edit and proofread their posts, as needed, based on the instructor's feedback, and have enough in-class time to work on corrections.

Keywords: on-line discussions, hybrid classes, writing

iafor
The International Academic Forum
www.iafor.org

Introduction

Hybrid classes are a combination of face-to-face and online instruction, with 30% to 79% of teaching taking place outside of the classroom (Allen, Seaman, & Garrett, 2007). Hybrid learning aims to combine the features of face-to-face and online instruction; while the former provides social interaction, the latter offers flexibility in time and location and reduces the cost.

The share of students who take hybrid classes is growing. According to the report from the Education Department's National Center for Education Statistics, published in January 2019, the number of students who took hybrid classes in the United States grew from 16.4 percent in 2016 to 17.6 percent in 2017 (Lederman, 2018). According to the 2019 On-Line Education Trends Report, an increasing number of students prefer a live, scheduled component in their on-line courses: the growth from 56% of all respondents in 2016 to 60% of all respondents in 2019 (Venable, 2019). Interestingly, students who reported dissatisfaction with taking only on-line courses listed "lack or community and/or interaction with professors and classmates" as one of their concerns (16% in 2017 and 17% in 2018) (Venable, 2019, n.p.).

Asynchronous discussion boards are widely used in higher education settings and can provide several educational benefits for students. One such benefit is that in online forums all students, even those who tend to remain silent in face-to-face discussions, can participate at their own pace, which leads to more interaction with the class than in entirely face-to-face courses. For these reasons, some instructors use online discussion groups in addition to or even in place of face-to-face discussions (Rothgeb, 2018). Besides discussions, forums can be used for social purposes, made into a space for questions and answers, or turned into a platform for figuring out the processes in a collaborative project (Marbouti & Friend Wise, 2016).

However, despite the promise of discussion boards, there is substantial evidence that students do not use online discussions with the richness expected and desired. The lack of engagement in asynchronous forums is seen as a ubiquitous phenomenon; researchers also note low participation and disinterested and shallow comments (Ding, Kim, & Orey, 2017). The main concern is the phenomenon of lurking (Cesareni, Cacciamani, & Fujita, 2016) which is either not posting at all or posting simple or disjointed comments which contribute little to communication and new knowledge. One approach to dealing with lurking is "to emphasize quality and thoughtfulness of responses over quantity and frequency. Another [approach] puts the instructor in the driver's seat, steering conversations to sharper insights as they might from the front of a classroom" (Lederman, 2018, n.p.). Still other researchers introduce roles, such as "proponent" or "critic" (Cesareni, Cacciamani, & Fujita, 2016).

The purpose in this paper is to share one approach to increasing students' engagement in the on-line discussions of several writing classes at University of Maryland Global Campus (UMGC).

In regards of the purpose, the three main areas will be addressed:
1. building a classroom community through sharing experiences and opinions,
2. identifying and correcting writing problems, and
3. building content.

UMGC is a public university with a 100 percent acceptance for undergraduates. It focuses on online education primarily for working adults, with the median age around 30-35, as well as military service members and their families. The main campus is in Largo, Maryland, and satellite campuses are throughout Maryland, in Europe, the Middle East, and Asia. The current total enrollment is over 91,000 students, with minority students constituting around 65 per cent (Fact Book, 2019).

The context of this study are four classes that provide writing instruction at Asia Division of UMGC in Okinawa, Japan Academic Writing I (WRTG 111), Academic Writing II (WRTG 112), Advanced Technical Writing (WRTG 393), and Composition and Literature (ENG 102). WRTG 111 and WRTG 112 fulfil the general education requirement in communication; WRTG 393 is one of the required classes in upper-level advanced writing; and ENG 102 fulfills the general education requirements in communications or arts and humanities. The total enrollment in these classes from August 2019[1] to the present was about 100 students. All these classes included on-line discussions as part of their syllabi, typically two discussions per week. All the student work used in this paper was obtained with the permissions of the students who filled out an Informed Consent form.

Results and Discussion

When introducing students to the on-line discussions, it is important to explain the discussions' purpose, such as the following:
1. building a classroom community,
2. identifying and correcting writing problems, and
3. building the content.

Below is an explanation of some strategies used to engage students in achieving the three purposes.

1. Building a classroom community through sharing experiences and opinions. To engage students in this process, discussions are brought closer to students' experiences and left open-ended. Below is an example of such prompt:

What topic are your considering for your first project? Why are you interested in this topic? What is your familiarity and personal experience with this topic?

2. Diagnosing writing problems and modeling corrections. To increase students' interest in this grammar-based activity, it is recommended to use students' own writing for modeling and correcting. Also, to avoid overwhelming students with grammar rules, it is better to stay focused on one or two problems at a time.

For example, a blanket in-class overview of the writing issues can be provided in the face-to face section of a hybrid class, focusing on one or two problems at a time. This blanket overview typically takes form of a "proofreading session. The assignment may look like this:

[1] August 2019 is when the author started working at UMGC as full-time Collegiate Faculty.

1. Please proofread your own paragraph [a paragraph selected from a previous discussion].
2. Next, proofread your partner's paragraph [a paragraph selected from a previous discussion].
3. Compare notes.
4. Finalize proofreading your own paragraph and post it under Discussion 1 in Week 7.

Giving corrective feedback on writing is a controversial issue. Some researchers tend to view grammar correction negatively as generally ineffective for students and too time-consuming for teachers (Isnawati, Sulistyo, Widiati, & Surya, 2019). Others, on the contrary, stress the importance of corrective feedback for students' improvement. For example, Chandler's (2003) study "demonstrates that students in experimental group who did error correction made significant improvement in accuracy within 10 weeks compared to control group who did not do error correction" (as cited in Isnawati, Sulistyo, Widiati, & Surya, 2019, p. 671). The author of the present paper has empirically seen that students' motivation increases, often drastically, when they see tangible improvement in their writing after the "proofreading sessions" described above.

3. Building content. To stimulate students to build content, it is preferable to allow students choose their own topics. Topics which are close to students' experiences make research intellectually stimulating. More abstract content can be introduced in relation to pragmatic topics. For example, the prompt, *Is writing grammatically correctly still important?* can lead to an introduction of such concepts as prescriptivist and descriptivist linguistics and grammar as a social norm.

Conclusion

The median age of the students discussed in this study is around 30 year old, which is consistent with the median age of students at UMGC. According to the situated learning theory, the older students are more able than their younger counterparts to contextualize knowledge in their experience, and, therefore, they may be "more likely to learn more through social interaction in the message boards" (DiBiase & Kidwai, 2010, p. 321).

The situated learning theory "advocates learner's control (at the very least, substantial input) over not only the objectives but also the learning strategies as well as evaluation procedures" (as quoted in DiBiase & Kidwai, 2010, p. 321). Viewed from this point, discussion boards could serve as platforms for determining the objectives most suitable for learners' purposes, deciding on the content and form of assignments, and peer- and group-evaluating. In the writing classes discussed in this paper, the online discussions are used for peer- and self-evaluation (editing and proofreading). Revising, editing and proofreading are typically done in class, with enough time allotted for the purpose. As Gibbs (1999) stated, "… planning a course so that students spend enough time tackling the necessary learning activities is one of the most important things teacher can do" (as quoted inDiBiase & Kidwai, 2010, pg. 322). In view of this statement, all the writing classes discussed above are run as workshops rather than lectures.

Students' engagement in online discussions in hybrid writing classes can be increased if students understand the purpose of discussions, are provided with the standards for discussion posts and responses, only get credit if they revise, edit and proofread their posts, as needed, based on the instructor's feedback, and have enough in-class time to work on corrections.

References

Allen, I.E., Seaman, J., & Garrett, R. (2007). Blending in: The extent and promise of blended
education in the United States. *Sloan Consortium.* https://eric-ed-gov.ezproxy.umuc.edu/?id=ED529930

Cesareni, D.., Cacciamani, S., & Fujita, N. (2016). Role taking and knowledge building in a
blended university course. *International Journal of Computer-Supported Collaborative
Learning.* 1, 9-39. https://doi-org.ezpro xy.umuc.edu/10.1007/s11412-015-9224-0

DiBiase, D., & Kidwai, K. (2010). Wasted on the young? Comparing the performance and
attitudes of younger and older US adults in an online class on geographic information.

Journal of Geography in Higher Education. 34(3), 299-326. https://doi-org.ezproxy.umuc.edu/10.1080/03098265.2010.490906

Ding, L., Kim, C., & Orey, M. (2017). Studies of student engagement in gamified online
discussions. *Computers & Education.* 115, 126-142. https://doi-org.ezproxy.umuc.edu/10.1016/j.compedu.2017.06.016

Fact Book FY2019 (2019). *University of Maryland Global Campus.* https://www.umgc.edu/documents/upload/fiscal-year-fact-book-2019.pdf

Isnawati, I, Sulistyo, G.H., Widiati, U., & Surya, N. (2019). Impacts of teacher-written corrective
feedback with teacher-student conference on students' revisions. *International Journal of Instruction*. 12(1), 669-684. https://eric-ed-gov.ezproxy.umuc.edu/contentdelivery/servlet/ERICServlet?accno=EJ1201335

Lederman, D. (2018). Online education ascends. *Inside Higher Education.* https://www.insidehighered.com/digital-learning/article/2018/11/07/new-data-online-enrollments-grow-and-share-overall-enrollment

Marboiuti, F., & Friend Wise, A. (2016). Starburts: a new graphical interface to support
purposeful attention to peers' posts in online discussions. *Educational Technology Research and Development.* 64(1), 87-113. http:// www.jstor.org.ezproxy.umuc.edu/stable/24761349

Rothgeb, J. (2018). Do online discussion groups enhance students' analytical ability and recall of
factual knowledge? *Journal of Political Science Education*. 14(3), 331-340. https://doi-org.ezproxy.umuc.edu/10.1080/15512169.2017.1402684

Venable, M (2019). 2019 Online education trends report. *Best Colleges.* https://www.bestcolleges.com/perspectives/annual-trends-in-online-education/

Contact email: maria.staton@faculty.umuc.edu

Level of Grit Among Faculty Members in a Selected Higher Academic Institution

Erwin D. Roxas, De La Salle University, Philippines

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract
This quantitative correlational study investigated if there is a significant relationship between the demographic profile and the level of grit of faculty members from a selected higher academic institution (HAI). Survey questionnaires were distributed to 155 faculty-respondents through the College Deans and School Principal. The result of the study is consistent with the findings of Duckworth (2016) that grit was correlated to age which means that the more a person ages, the grittier he becomes. This study likewise confirms the work of Robertson-Kraft & Duckworth (2014) which reported that grittier individuals were more likely to stay long in the organization. It also supports the report of Robinson (2015) which stated the connection between grit and the respondents' demographic profile in terms of correlation and predictive function. A significant difference is also found between grit and the following variables: highest education attainment, faculty rank, average teaching performance, and college assignment. On the other hand, no significant difference existed between grit and gender, employment status, and civil status. Grit which is also reported in the study to determine faculty employment retention may be utilized by HAIs in reducing the faculty turnover ratio. Results of the study may also guide the Human Resource Department in the selection and hiring of the faculty members.

Keywords: grit, demographic profile, faculty employment turnover

iafor
The International Academic Forum
www.iafor.org

Introduction

In every academic institution, faculty turn-over is one of the major challenges to the administration and is often detrimental to the effective functioning of the organization. Iqbal (2010) defined organizational turn-over as the ratio of the number of organizational members who have left during the period being considered divided by the average number of people in that organization during period. With this concern, Eskreis-Winkler, Shulman, Beal, & Duckworth (2014) state that grit is a determining factor whether or not an individual will stay long in an organization. Furthermore, Suzuki, Tamesue, Asahi & Ishikawa (2015) state that grit is a contributing factor in work engagement; and Robinson (2015) cited that grit is an important factor in skills engagement, emotion engagement and class participation/interaction engagement of students.

Looking into the factors that promote faculty turnover and the ways to mitigate it then becomes a management imperative.

One factor that may be considered is the teacher's sense of purpose. Intrator & Kunzman (2006) believed that the professional development and teaching competence require an inversion of Maslow's pyramid which means that faculty development must begin with the soul of the institution. Teacher competence may be promoted through training programs on content, pedagogy, and learning outcomes. Evoking the inner life of our teachers, engaging them in activities that cultivate their capacity to teach with greater consciousness, and integrity are necessary condition for a successful professional development. Caution however must be taken so as not to misconstrue this 'inner life' approach to faculty development as a luxury secondary to such issues as pedagogical technique and curriculum development.

Another factor is the passion to teach. Day (2009) reported that teacher attrition and retention tend to focus on factors affecting teachers' decision to leave the teaching profession (OECD, 2005). Day further discussed that what must be required is a better understanding of the factors that enable teachers to sustain their motivation, commitment and passion towards effectiveness in the profession.

Furthermore, perseverance as another factor is not sufficient assurance for employees to perform well but through passion alignment, perseverance can predict job performance. Jachimowicz, Wihler, & Galinsky (2017) state that perseverance only propels employees forward when they experience passion alignment and employees who experienced passion alignment had lower intention to leave the organization.

In terms of correlational studies, Dobbins (2016) conducted a correlational analysis which shows that there is a statistically significant relationship between teacher grit and teacher efficacy. Furthermore, Argon and Kaya (2018) states that individuals with higher grit are more committed to their goals and are performing better than others with lower grit. Suzuki et.al. (2015), Robinson (2015) found correlation between demographic profile and their grit, however, Suzuki et.al. (2015) found no relation.

In the Philippines, faculty employment turn-over is also a serious problem particularly in the higher academic institutions. There have been studies internationally with

regard to the relationship between grit and work engagement as well as retention. In the local context, the researcher includes the difference of grit level according to the demographic profile.

In this study, the researcher hypothesized that there is a connection and significant relationship between the demographic profile and the grit level of the faculty members in terms of correlation and predictive function. With this, the researcher determines if the demographic profile of the faculty can predict the level of grit and that grit is a determining factor in the faculty employment retention.

The findings of this study can serve as a tool for the Human Resource Department and the administration in the selection, employment and creation of programs for faculty retention.

Conclusion

Findings

A total of 155 respondents were included in the study. Table 1 shows the distribution of subjects according to demographic profiles. Their age ranged from 22 to 64 years with a *Mean* age of 40.99 years. Most of the respondents had masters degree. Mostly were assistant professor and associate professor. Based on the average teaching performance of the faculty and teachers as evaluated by the students, 64 or 41.3% of the total respondents got very good rating. Majority were female in which 29.7% of the total respondents were faculty of College of Medicine. Majority were single and in regular employment status. Lastly, based on the teaching performance of the faculty as evaluated by the Dean or Principal, 67 or 43.2% of the total respondents got *very satisfactory* rating.

	Frequency (n=155)	**Percentage**
Age (in years)		
21 – 25	14	9.0
26 – 30	31	20.0
31 – 35	13	8.4
36 – 40	17	11.0
41 – 45	23	14.8
46 – 50	12	7.7
51 – 55	21	13.5
56 – 60	16	10.3
61 – 65	8	5.2
Mean ± SD = 40.99 ± 12.04		
Years		
<1	13	8.4
1 – 5	57	36.8
6 – 10	37	23.9
11 – 15	17	11.0
16 – 20	11	7.1
21 – 25	10	6.5
26 – 30	7	4.5

31 - 35	3	1.9
Mean ± SD = 9.17 ± 8.23		
Education		
Bachelor	50	32.3
Masters	68	43.9
Doctor of Medicine	26	16.8
Doctoral	11	7.1
Rank		
Teacher	40	25.8
Instructor	18	11.6
Assistant Professor	50	32.3
Associate Professor	47	30.3
Average Teaching		
Not Applicable	23	14.8
Good	15	9.7
Very Good	64	41.3
Excellent	53	34.2
Gender		
Male	65	41.9
Female	90	58.1
College		
Arts and Sciences	12	7.7
Basic Education	40	25.8
CBT	9	5.8
Dentistry	13	8.4
Medical Technology	11	7.1
Medicine	46	29.7
Nursing	9	5.8
Optometry	8	5.2
Pharmacy	3	1.9
PT	4	2.6
Status		
Single	81	52.3
Married	71	45.8
Others	3	1.9
Employment		
Regular	91	58.7
Non-regular	64	41.3
Teaching Performance		
Not Applicable	14	9.0
Satisfactory	18	11.6
Very Satisfactory	67	43.2
Excellent	56	36.1

Table 1. Demographic Profile of Respondents

Table 2 shows the distribution of subjects according to grit scores. The over-all grit scores ranged from 4.8 to 10 with a *Mean* of 7.97. The *Mean* grit score was rounded off to 8. The level of grit score was defined taking into consideration the Mean grit score. A respondent is considered having average grit level if the score is 8. A below average grit level was assigned to the respondents having a score of <8 and an

average grit was assigned to the respondents having a score of >8. Hence, from the 155 respondents, 70 (45.2%) had below average grit level while 53 (34.2%) had average grit level and 32 (20.6%) had above average grit level.

	Frequency (n=155)	**Percentage**
Grit Scores		
4	2	1.3
5	4	2.6
6	21	13.5
7	43	27.7
8	53	34.2
9	27	17.4
10	5	3.2
Mean ± SD = 7.97 ± 1.12		
Median = 8		
Level of Grit		
Below Average	70	45.2
Average	53	34.2
Above Average	32	20.6

Table 2. Level of Grit of Respondents

Table 3 shows the relationship of the different demographic profiles with the grit level of respondents. There was a significant difference in the age of respondents according to the level of grit as proven by the *p value* of <0.0001 derived from the *ANOVA*. Furthermore, it can be seen that the age increased with increasing grit level. The *Mean* age in years of respondents with below average, average, and above average grit levels were 35.64, 44.45 and 46.94, respectively.

A similar result was noted for years (p<0.0001). The median years increased with an increasing level of grit. There was also a significant relationship between education and level of grit (p=0.002).

The proportion of respondents with above average grit increased with increasing educational attainment from 12% for bachelors, 22.1% for those with masters education, 26.9% for doctor of medicine to 36.4% for those with doctoral degree. Rank was also found to be significantly related with level of grit (p=0.0004) and average teach (p=0.01).

Moreover, college, status and teaching were also significantly related to level of grit as shown by the *p values* <0.0001, 0.03, and 0.01 respectively. On the other hand, sex and employment were not significantly related to the level of grit as proven by the *p values* 0.06 and 0.42, respectively.

	Level of Grit			
	Below Average (n=70)	**Average** (n=53)	**Above Average** (n=32)	***p-value****
Age (in years)				
Mean ± SD	35.64 ± 10.56	44.45 ± 11.91	46.94 ± 10.60	<0.0001 (S)[†]
Years				
Mean ± SD	5.97 ± 5.06	11.57 ± 9.75	12.22 ± 8.81	<0.0001
Median	5.00	9.00	11.50	(S)[‡]
Education				
Bachelor	32 (64.0%)	12 (24.0%)	6 (12.0%)	
Masters	32 (47.1%)	21 (30.9%)	15 (22.1%)	0.002
Doctor of	5 (19.2%)	14 (53.8%)	7 (26.9%)	(S)[§]
Medicine	1 (9.1%)	6 (54.5%)	4 (36.4%)	
Doctoral				
Rank				
Teacher	28 (70.0%)	10 (25.0%)	2 (5.0%)	
Instructor	11 (61.1%)	6 (33.3%)	1 (5.6%)	0.0004
Assistant	19 (38.0%)	16 (32.0%)	15 (30.0%)	(S)[§]
Professor	12 (25.5%)	21 (44.7%)	14 (29.8%)	
Associate				
Professor				
Average				
Teaching	15 (65.2%)	6 (26.1%)	2 (8.7%)	
Not Applicable	8 (53.3%)	4 (26.7%)	3 (20.0%)	0.01
Good	33 (51.6%)	22 (34.4%)	9 (14.1%)	(S)[§]
Very Good	14 (26.4%)	21 (39.6%)	18 (34.0%)	
Excellent				
Gender				
Male	30 (46.2%)	27 (41.5%)	8 (12.3%)	0.06
Female	40 (44.4%)	26 (28.9%)	24 (26.7%)	(NS)[§]
College				
Arts and	6 (50.0%)	4 (33.3%)	2 (16.7%)	
Sciences	28 (70.0%)	10 (25.0%)	2 (5.0%)	
Basic Education	6 (66.7%)	1 (11.1%)	2 (22.2%)	
CBT	7 (53.8%)	5 (38.5%)	1 (7.7%)	<0.0001
Dentistry	9 (81.8%)	2 (18.2%)	0	(S)[§]
Medical	9 (19.6%)	21 (45.7%)	16 (34.8%)	
Technology	1 (11.1%)	4 (44.4%)	4 (44.4%)	
Medicine	2 (25.0%)	4 (50.0%)	2 (25.0%)	
Nursing	1 (33.3%)	0	2 (66.7%)	
Optometry	1 (25.0%)	2 (50.0%)	1 (25.0%)	
Pharmacy				
PT				
Status				
Single	41 (50.6%)	28 (34.6%)	12 (14.8%)	
Married	29 (40.8%)	22 (31.0%)	20 (28.2%)	0.03
Others	0	3 (100%)	0	(S)[§]
Employment				
Regular	45 (49.5%)	28 (30.8%)	18 (19.8%)	0.42

Non-regular	25 (39.1%)	25 (39.1%)	14 (21.9%)	(NS)§
Teaching				
Not Applicable	6 (42.9%)	6 (42.9%)	2 (14.3%)	
Satisfactory	11 (61.1%)	4 (22.2%)	3 (16.7%)	0.01
Very	38 (56.7%)	21 (31.3%)	8 (11.9%)	(S)§
Satisfactory	15 (26.8%)	22 (39.3%)	19 (33.9%)	
Excellent				

** p>0.05- Not Significant (NS); p ≤0.05-Significant (S)*
Data presented as Mean ± SD, (medians) were computed as needed; or as frequency (%)
†ANOVAt; ‡Kruskal Wallis test; §Chi-square test

Table 3. Relationship of the Different Demographic Profile with the Level of Grit of Respondents

The study as shown in Table 4 revealed that there was a statistically significant difference between the level of grit and the following variables: highest education attainment, faculty rank, average teaching perfromance as evaluated by the students, college assignment, and teaching performance as evealuated by the Dean or Principal last semester.

On the other hand, the difference of grit level according to gender, employment status, cand civil status was not significant.

	n	**Level of Grit** Mean ± SD	***p-value****
Age (in years)			
21 – 25	14	7.43 ± 1.14	
26 – 30	31	7.30 ± 1.14	
31 – 35	13	7.66 ± 1.05	
36 – 40	17	8.06 ± 1.17	
41 – 45	23	8.11 ± 0.87	<0.0001 (S)†
46 – 50	12	8.55 ± 1.11	
51 – 55	21	8.12 ± 1.01	
56 – 60	16	8.50 ± 0.89	
61 – 65	8	9.08 ± 0.68	
Years			
<1	13	7.46 ± 1.13	
1 – 5	57	7.72 ± 1.12	
6 – 10	37	7.70 ± 1.14	
11 – 15	17	8.37 ± 0.93	<0.001 (S)†
16 – 20	11	8.91 ± 0.64	
21 – 25	10	8.70 ± 0.88	
26 – 30	7	8.71 ± 0.89	
31 – 35	3	8.40 ± 0.40	
Education			
Bachelor	50	7.54 ± 1.12	
Masters	68	7.99 ± 1.06	<0.001 (S)†
Doctor of	26	8.41 ± 1.12	
Medicine	11	8.76 ± 0.70	

Doctoral			
Rank			
Teacher	40	7.37 ± 1.02	
Instructor	18	7.73 ± 0.77	<0.001 (S)[†]
Assistant	50	8.10 ± 1.25	
Professor	47	8.44 ± 0.94	
Associate			
Professor			
Ave. Teach			
Not Applicable	23	7.26 ± 1.17	
Good	15	7.55 ± 1.40	<0.0001 (S)[†]
Very Good	64	7.86 ± 0.94	
Excellent	53	8.53 ± 0.98	
Gender			
Male	65	7.94 ± 1.02	0.78 (NS)[II]
Female	90	7.99 ± 1.20	
College			
Arts and	12	7.73 ± 1.44	
Sciences	40	7.37 ± 1.02	
Basic Education	9	7.71 ± 1.19	
CBT	13	7.70 ± 0.78	
Dentistry	11	7.49 ± 0.68	<0.0001 (S)[†]
Medical	46	8.51 ± 1.06	
Technology	9	8.62 ± 1.00	
Medicine	8	8.34 ± 0.83	
Nursing	3	8.47 ± 0.92	
Optometry	4	8.65 ± 0.96	
Pharmacy			
PT			
Status			
Single	81	7.77 ± 1.16	
Married	71	8.18 ± 1.08	0.09 (NS)[†]
Others	3	8.33 ± 0.12	
Employment			
Regular	91	7.91 ± 1.12	0.39 (NS)[II]
Non-regular	64	8.06 ± 1.14	
Teaching			
Not Applicable	14	7.77 ± 1.11	
Satisfactory	18	7.49 ± 1.35	<0.001 (S)[†]
Very	67	7.73 ± 1.02	
Satisfactory	56	8.46 ±1.03	
Excellent			

** p>0.05- Not Significant (NS); p ≤0.05-Significant (S)*
[†]ANOVAt; [II]T- test

Table 4. Comparison of Grit Score According to the Different Demographic Profiles of Respondents

None of the variables listed in Table 5 was found to be a significant predictor of grit level (p>0.05) by multiple regression analysis.

Variable	*B*	*SE*	*p value*
Age	0.012	0.013	0.35 (NS)
Years	0.016	0.014	0.27 (NS)
Education	0.112	0.123	0.36 (NS)
Rank	0.057	0.111	0.61 (NS)
Ave. Teach	0.293	0.238	0.22 (NS)
Gender (F)	0.083	0.185	0.66 (NS)
Status	0.008	0.203	0.97 (NS)
Employment	-0.215	0.188	0.25 (NS)
Teaching	0.082	0.223	0.72 (NS)

Table 5. Predictors of Level of Grit Score by Multiple Regression Analysis

Logistic regression was used for multivariate analysis of data. Table 6 shows that only gender was found to be a significant predictor of above average grit level (p=0.03). There was an almost three times higher chance for females to have an above average level of grit than males (OR=2.88; 95% CI=1.06 – 7.77; p = 0.03).

Variable	*OR*	95% *CI*	*p value*
Age	0.99	0.93 – 1.06	0.83 (NS)
Years	1.03	0.97 – 1.10	0.35 (NS)
Education	1.21	0.67 – 2.21	0.53 (NS)
Rank	1.58	0.86 – 2.91	0.14 (NS)
Ave. Teach	1.24	0.40 – 3.92	0.71 (NS)
Gender (F)	2.88	1.06 – 7.77	0.03 (S)
Status	1.83	0.65 – 5.18	0.25 (NS)
Employment	0.96	0.37 – 2.51	0.93 (NS)
Teaching	1.19	0.40 – 3.54	0.76 (NS)

Logistic Regression Analysis

Table 6. Predictors of Above Average Level of Grit by Logistic Regression Analysis

The study is consistent with the findings of Duckworth (2016) that grit was correlated to age. According to Duckworth (2016), the more a person has aged, the more that he/she to be grittier. Likewise, the result support the findings of Robertson-Kraft & Duckworth (2014) that grittier individuals were more likely to stay long in the organization.

The study supports the report of Robinson (2015) that there was a connection between the level of grit and the demographic profile of the respondents in terms of correlation. The study also showed only gender, specifically female, predicts above average grit level.

To further strenghten the research, the difference of grit level according to demograhicn profile was also included in the study. It was revealed that there was a statistically significant difference between the level of grit and the following variables: highest education attainment, faculty rank, average teaching perfromance as evaluated by the students, college assignment, and teaching performance as evaluated by the Dean or Principal last semester. On the other hand, the difference of grit level according to gender, employment status, cand civil status was not significant.

Implications of the Findings

Based on this study, it has been known that grit is a determining factor in the faculty employment retention. Also, the demographic profile of the faculty can predict the level of grit. For this reason, the management of a higher academic institution may utilize the result of the study in reducing the faculty turnover ratio.

The current study will also serve as a guide for Human Resource Department in the selection and hiring of the faculty members. As shown in the study, the University Human Resoure Department must hire applicants with higher level of grit.

Limitations

The study in this research paper has a number of limitations. First, due to self-answered questionnaire, there is a possibility that the actual rating on teaching performance was not accurately reflected on the survey. Second, due to the correlational nature of the research, it cannot be concluded that grit was categorically related to the length of service. The passion to teach for example, as a reason of the faculty to stay in the University, is a factor that is inherent within the individual and not because of grit.

References

Argon, T., & Kaya, A. (2018). Examination of Grit Levels of Teachers According to Personal Variables. Journal of Education and Training Studies, 6(3a), 45–46. https://doi.org/10.11114/jets.v6i3a.3157

Day, C. (2009). A Passion for Quality : Teachers Who Make. Yijdschrift Voor Lerarenenoplenders, 30, 4–13.

Dobbins, D. (2016), Teacher Effectiveness: Examining the Relationship between Teacher Grit and Teacher Self Efficacy, Oklahama State University.

Duckworth, A. (2016), Grit, The Power of Passion and Perseverance, Scribner

Eskreis-Winkler, L., Shulman, E. P., Beal, S. A., & Duckworth, A. L. (2014). The grit effect: Predicting retention in the military, the workplace, school and marriage. Frontiers in Psychology, 5(February), 1–12. https://doi.org/10.3389/fpsyg.2014.00036

Intrator, S. M., & Kunzman, R. (2006). Starting With the Soul, 63(6), 38–43.

Iqbal, A. (2010). Employee Turnover: Causes, Consequences and Retention Strategies in Saudi Organizations, (January).

Jachimowicz, J. M., Wihler, A., & Galinsky, A. D. (2017). The Dual Pillars of Grit: The Synergetic Benefits of Combining Perseverance and Passion Alignment for Job Performance, 3–19.

Robertson-Kraft, C., & Duckworth, A. L. (2014). True Grit: Trait-level Perseverance and Passion for Long-term Goals Predict Effectiveness and Retention among Novice Teachers, 116(3), 1–24. https://doi.org/10.1016/j.pain.2013.06.005.Re-Thinking

Robinson, W. L. (2015). Grit and Demographic Characteristics Associated with Nursing Student Course Engagement.

Suzuki, Y., Tamesue, D., Asahi, K., & Ishikawa, Y. (2015). Grit and work engagement: A cross-sectional study. PLoS ONE, 10(9), 1–11. https://doi.org/10.1371/journal.pone.0137501

The Influence of Mentoring and Coaching Relationship on Job Satisfaction and Life Satisfaction in Teachers: Pilot Study of Vocational Teachers in Thailand

Sukritta Preechawong, King Mongkut's University of Technology Thonburi, Thailand
Anusit Anmanatrakul, King Mongkut's University of Technology Thonburi, Thailand
Pichet Pinit, King Mongkut's University of Technology Thonburi, Thailand
Ravinder Koul, Pennsylvania State University, United States

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract
A lack of support from the principal, colleagues or other school leaders is one of the most important problem in teachers. There are many dimensions for teachers to handle in their lives such as workload, independently in career, life balance, and stress. Then it may decrease job satisfaction and life satisfaction in teachers. Mentoring and coaching are strategy that can support teachers not only in working life but also well-being. This study intended to investigate pros and cons of mentoring and coaching for teachers and examine the effects of mentoring and coaching relationship on job satisfaction and life satisfaction in teachers. For analyzing data, researcher uses questionnaire about mentoring and coaching experience, job satisfaction and life satisfaction in teachers using correlation and linear regression statistics. In this pilot study, data were collected by 44 vocational teachers from 7 provinces in northern, northeastern and southern parts of Thailand. The results showed that there were 3 factors correlated to job satisfaction; which were mentoring vicarious, mentoring psychosocial and mentoring verbal. Mentoring vicarious strongly associated with job satisfaction. Moreover, it had correlation between job satisfaction and life satisfaction in teachers. Findings could predict that we should promote mentoring vicarious in teachers for example creating modeled leadership or fostering supportive environment by working and learning alongside with mentors.

Keywords: Job satisfaction, Life satisfaction, Coaching, Mentoring

iafor
The International Academic Forum
www.iafor.org

Introduction

The rapidly changing world causes the education to change including teachers. There are a lot of expectation to teacher to improve their knowledge, skills and performance to increase students' achievement. Teachers do not only teach in their classroom but need to take care of their students about feeling and behaviors. In addition, documents and implementing new policies are the things that teachers are responsible. Teachers work with administrators, parents, staffs and other stakeholders. These may affect to their lives and career such as workload, isolation in career, life balance and so on. From the review, teachers are faced with problems that make them dissatisfy in their lives and career. The Teacher Wellbeing Index,2018 from UK showed that 29% of all teachers work more than 51 hours a week on average. Long hour of working make stress appear and link to other mental health. 72% of education professionals have experienced about behavioral, psychological or physical symptoms by reason of their work. In Bhutan, teachers were challenge with expectations of parents. Moreover, they are in between of the system and the community and the living standard in country (Drukpa, 2010). In USA study found that teachers feel tired intellectually and emotionally when they deal with student misconducts (Chang,2009). Teacher who are emotionally loaded are fewer effective educators and more likely to leave the profession (Chang,2009). Teachers in primary schools are experiencing job stress because they had to deal with students' misbehavior (Ismail et al., 2019). In Thailand context, Thai teachers are busy with administrative and community work in addition to teaching. Low salaries made most of teachers deeply in dept and work at other jobs to fulfil their few teaching incomes (Wallace, 2003). These are all reasons that effect to teachers' job satisfaction and life satisfaction. Teachers who are not fully satisfied with their jobs may affected to the standard of education and the motivation levels of the students (Amin, Shah, & Tatlah, 2013). Moreover, job satisfaction and life satisfaction in teachers can affect to motivation to leave from their profession as well. It showed that workload and over of documentations are triggers for teacher to leave. (Lindqvist et al., 2014)

In vocational context, vocational education is overshadowed by the increasing emphasis on general education. Vocational education is often seen as having a low status (OECD,2020). It may cause vocational teachers feel low motivation to teach. From my preliminary on site observation in vocational teacher training in Thailand, I found that vocational teachers have many challenge in their work and lives such as workload, misconduct of students' behavior, colleagues and administrator support. It causes stress and dissatisfy in their job and life. It can conclude that teachers need support to enhance job satisfaction and life satisfaction because it effects in many ways such as teacher performance, teacher attrition or student achievement. Coaching and mentoring are the methods that can support teachers. Coaching can be used to develop teaching' instructional skills especially in new teaching practice. (SeferoĞlu, 2000). In the study of Amal Alsaleha et. al.,2017 showed that peer coaching in pre-service teacher can develop a cooperative climate and trustworthy relationship. Moreover, it helps teachers to have more self-confidence and good teaching skills. For mentoring, it helps teacher to enhance both career and psychological development. (Kram, 1983). The mentor can give support and ease the isolation that often happen in teachers especially new teachers (Jonson, 2008).

Research objective

The purpose of this study is to investigate pros and cons of mentoring and coaching for teachers and examine the effects of mentoring and coaching relationship on job satisfaction and life satisfaction in teachers.

Conceptual Framework

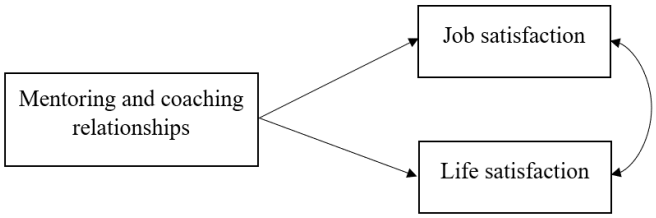


Figure 1: conceptual framework of the study

Literature review

Coaching

Coaching is a way to deliver results in large measure because it is powerful working relationship emerged and it is the way of style in communication. It can approach in many ways in workplace such as goal setting, strategic planning, creating engagement, motivating and inspiring, teamworking, problem solving, career development, giving feedback, appraisal and relationship alignment (John Whitmore, 2017). Coaching is a profession that took place from the world of sports into the world of business in early of 1980. Nowadays, coaching acquires concepts and skills from wide range of other discipline including management consultancy, psychology, psychotherapy, linguistics, anthropology and meditation. In coaching profession, there are different sub-groups including business coaches, NLP (Neuro Linguistics Programming) coaches, CBT (Cognitive Behavioral Therapy) coaches and many others. Coaching can help people who get coached to become more self-awareness and self-responsible and to assist them to set SMART (specific, measure, attainable, relevant, timebound) goals for their future action. Coaching will lead to transformative learning because it can convert knowledge to skill and make a transformation in people who get coached (Fazel, 2013).

In education field, peer coaching is one of famous method that teachers use. It can foster teachers' career growth based on teaching practice. Teachers' learning, team cooperation and teachers' self-confidence. Peer coaching is a process that two and more colleagues can work together for specific objective like improving the instructional performance. Peer coaching can help teachers to understand themselves and their students by using self-reflective practice and reflective peer coaching practice (Soisangwarn and Wongwanich, 2014). There are three main skills that coaches use for facilitating session to support clients or coachee to achieve the purpose which are 1) active listening 2) asking powerful questions 3) giving feedback (Fazel, 2013). It might help clients or coachee to have self-confidence and awareness by using psychosocial and verbal persuasion.

Mentoring

Mentoring program was spread in United Stated since 1970 in the context of training. Mentorship has a potential to increase 2 functions of development which are career and psychosocial. Career function is the aspects of relationship that enhance career advancement; it concludes sponsorship, exposure and visibility, coaching, protection and challenging assignment. For psychosocial function is the aspect of the relationship that enhance sense of competence, clarity of identity and effectiveness in the managerial role; it concludes role modeling, acceptance and confirmation, counseling and friendship (Kram, 1983). Mentoring process can happen in both formal and informal. For informal process, the matching will occur when the potential mentees search for experienced, successful people whom they perceive as good role models. Potential mentors find for talented people who are learnable.

In schools, Mentor is a role for developing and training for someone new in the profession. The effective mentor give support and relieve the isolation that often happen with novice teachers. The mentors develop the relationship of trust with beginning teachers. Successful mentoring relationship can produce mentees to have personal and professional competencies, thus mentees have capability and opportunity to progress career goal that they chose by themselves. The characteristics of mentor is to enhance motivation and facilitating coping efficacy, developing mentee career self-efficacy, developing a sense of belonging. (Pfund et al., 2016)

Pros and cons of coaching and mentoring methods

Articles	Author, year of publication and country of study	Pros	Cons	Types of coaching/ mentoring
Impact of peer coaching strategy on pre-service teachers' professional development growth in Kuwait.	Amal Alsaleh et al. (2017). Kuwait	- Useful experiences that encourage participants to cooperate with other teachers. - Teachers can improve teaching practices and strengthen positive skills by others. - Teachers feel more confidence, active and increase spirit to work.	- Flexibility of head of department for class schedule. - Time consuming.	Coaching
The Effects of Coaching on Teacher Efficacy, Academic Optimism and Student	Nancy Akhavan & Susan Tracz (2016). USA	- Coaching effect on teachers' belief that coaching increases their ability to impact student achievement.		Coaching

Achievement: The Consideration of a Continued Professional Development Option for Teachers				
The Effect of Teacher Coaching on Instruction and Achievement: A Meta-Analysis of the Causal Evidence	Matthew A. Kraft, David Blazar and Dylan Hogan (2018) USA	- Improve instructional practice in teachers. - Changing of teachers' behavior effect on student achievement.	- High cost for face-to-face coaching - Coach and evaluator should not the same person because it undercut trust.	Coaching
Mentoring beginning teachers: What we know and what we don't. (Review)	Andrew J. Hobsona, Patricia Ashbya, Angi Malderezb, Peter D. Tomlinsonb (2009) UK	- Reduce isolation, increased confidence and self-esteem, professional growth, improve self-reflection and problem's solving capability. - Increase morale and job satisfaction in new teachers. - Reduce teacher attrition rate in early career teachers.	- Poor mentoring practice by mentors who provide insufficient support. - Mentees have not been adequate challenge and not sufficient autonomy to innovate.	Mentoring
Influences of Mentoring Functions on Job Satisfaction and Organizational Commitment of Graduate Employees.	Morena William Nkomo, Wellington Didibhuku Thwala, and Clinton Ohis Aigbavboa (2018) South Africa	- A supportive mentoring affects the worker's organizational turnover intentions through job satisfaction and organization commitment. - The role-modelling mentoring has a major impact on job satisfaction.	- Concern about understanding the mentoring behavior's that foster mentees' affective commitment and job satisfaction because knowledge transfer could be negative sometimes.	Mentoring
A case study exploring teachers job satisfaction and teachers' retention issues	Chase J. Raymond (2018) USA	- A mentor-mentee relationship can foster affiliation, reduce stress and enhance job satisfaction in		Mentoring

in a large urban Oklahoma school district.		teachers.		
Coaching and mentoring for frontline practitioners.	Morgan, M. and Rochford, S. (2017) Ireland	- Coaching enhance professional performance, foster ongoing self-directed learning, increase life satisfaction and personal growth and improve executive leadership's behavior. - Mentoring improve self-confidence, develop career advancement, increase job satisfaction and personal satisfaction.	- Coaching is appropriate for developing people' potential rather than treatment for failing performers,	Coaching and mentoring
Holistic mentoring and coaching to sustain organizational change and innovation.	Kathryn G. Hollywood, Donna A. Blaess, Claudia Santin, & Lisa Bloom (2016)	- Encourages employees to discover their strengths and potential contributions. - Generate their own approaches and potential solutions to workplace challenges which support their job satisfaction. - Increase organizational performance and productivity. - Sustain change and innovation in organization.		Coaching and mentoring

Research methodology

Population and Sample

The correlation design with regression analysis was applied in this study. The population size of this study were 29,915 teachers in vocational college. This study was a pilot to examine correlation between coaching and mentoring experiences on

job satisfaction and life satisfaction in teachers. Then data were collected only 44 vocational teachers in Thailand.

Variables

Variables included coaching and mentoring experiences, job satisfaction and life satisfaction in teachers.

Instruments

A questionnaire comprised of demographic information, coaching and mentoring experiences, job satisfaction and life satisfaction scale was used as the research tool. Coaching and mentoring experiences questionnaire developed from Julie Diane Helber (2015) which have 4 components: career, psychosocial, vicarious, and verbal persuasion. Job satisfaction developed from Skaalivik & Skaalvik (2011) which have 4 items. Life satisfaction developed from The Oxford Happiness Questionnaire (Hill & Argyle, 2002) which have 8 items. These three parts were 5-Likert scale ranged from 1 (completely disagree) to 5 (completely agree).

Data collection

The online survey was used for data collection from teachers in 44 vocational college of Thailand who are in northern, northeastern and southern areas.

Findings

The results of mean comparison of job satisfaction, life satisfaction, coaching and mentoring experiences were shown in Table 1. In addition, the correlation between coaching and mentoring experience on job satisfaction and life satisfaction was presented in Table 2.

Table 1 Mean and standard deviation of job satisfaction, life satisfaction, coaching and mentoring experiences in teachers.

Descriptive Statistics			
	M	SD	N
Job satisfaction	4.56	.369	44
Life satisfaction	4.30	.352	44
Career Mentoring	4.37	.514	44
Psychosocial Mentoring	4.20	.602	44
Vicarious Mentoring	4.12	.584	44
Verbal Mentoring	4.33	.457	44

From table 1 career mentoring and coaching experience is the highest (M = 4.37, SD. = .514) meanwhile vicarious mentoring and coaching experience is the lowest (M = 4.12, SD. = .584)

Table 2 Correlation coefficients between mentoring and coaching experience on job satisfaction and life satisfaction via Pearson Correlation

Correlations						
	Career Mentoring	Psychosocial Mentoring	Vicarious Mentoring	Verbal Mentoring	Job satisfaction	Life satisfaction
Career Mentoring	1	.666**	.569**	.506**	.162	.080
Psychosocial Mentoring		1	.728**	.522**	.321*	.014
Vicarious Mentoring			1	.487**	.461**	.148
Verbal Mentoring				1	.347*	.275
Job satisfaction					1	.643**
Life satisfaction						1
**. Correlation is significant at the 0.01 level (2-tailed).						
*. Correlation is significant at the 0.05 level (2-tailed).						

From table 3 correlation coefficient between mentoring and coaching experiences on job satisfaction and life satisfaction showed that vicarious mentoring presented positive correlations at the significance of .01 to job satisfaction meanwhile verbal mentoring and psychosocial mentoring showed positive correlations at the significance of .05. Moreover, job satisfaction showed positive correlation at the significance of .01 to life satisfaction as well.

Discussion

From the review about pros and cons of coaching and mentoring, it presented that coaching and mentoring can support both personal and professional growth. For coaching, it focuses on performance, increase self-directed learning, develop new skills, dealing with unexpected situation, increase self-confidence and increase the levels of workplace well-being. Although there is some concern for example it is not appropriate for treatment in failure performance and time consuming sometimes. Meanwhile, mentoring can reduce isolation for mentees, improve self-reflection, increase morale in new joiners, reduce attrition rates of employees, reduce stress and increase job satisfaction. On the other hand, poor mentoring may affect to negative knowledge transfer sometimes if mentors provide insufficient support for mentees. Both of learning methods are focus on difference areas to develop people but it can help people to be more effective through talking, increase self-direction, self-esteem, efficacy, and accomplishments (Serrat,2009)

The results from pilot study by using linear regression analysis showed correlation between mentoring and coaching relationships on job satisfaction. Vicarious mentoring was strongly correlated with job satisfaction as Cynthia Mathieu et al. (2015) said that supervisory behavior effect on job satisfaction. It seems that modeling learning from mentors or coaches are effect on job satisfaction of mentees or coachee. The same as Gilbert F. Garcia (2015) reported that modeling peer behavior promotes both learning and engagement. Meanwhile psychosocial and verbal mentoring are less effect on job satisfaction. From the recommendation of Abigail Opoku Mensah and Asamani Lebbaeus (2013) said that giving verbal encouragement can help employees to overcome self-doubt and perceiving of self-efficacy in themselves. Moreover, the report of Carla U. Sizer (2008) showed that participants with mentors had a higher means for job satisfaction than the participants

without mentors. It represents about the significant of mentoring program in workplace.

The relationship between job satisfaction and life satisfaction has shown in this study as well. It related to the study of the Belgin Aydıntan and Hakan Koç (2016) reported that relationship between the teachers' job and life satisfactions is positively and important. Positive relationship shows that the higher level of job satisfaction means the higher level of life satisfaction of the teachers as well. It seems that job satisfaction can predict life satisfaction as Janet P. Near (1984) said that job satisfaction causes life satisfaction but that life satisfaction does not cause job satisfaction.

To summarize, three factors of mentoring and coaching relationship which showed positive correlation to job satisfaction should be focus and study more for improving professional development program.

Implication

This report should be extended for use in a variety of teacher surveys to compare differences. It can help to design the intervention in professional development program by using coaching and mentoring.

Limitation

The limitation of this study is small sample of pilot group, it should be extended to do full survey of teachers in this issue.

Conclusion

Mentoring and coaching does not one size fit all methods to use in teachers. It might integrate approach and support both teachers who feel failure and increase the potential in teachers who want to reach their goal. Besides, mentoring and coaching should apply for e-coaching and e-mentoring to save time and cost. Supportive school culture should promote by using mentoring and coaching in teachers because it can build trust, collaboration and increase performance in teachers that effects to student achievement.

Acknowledgement

I would like to express my sincere thanks to my advisors, Asst.Prof.Dr.Anusit Anmanatrakul, Asst.Prof.Dr.Pichet Pinit, Asst.Prof.Dr.Ravinder Koul for her invaluable help and constant encouragement throughout this study. Moreover, I am grateful for Miss Sugal Charoenkul for support me as well.

Reference

Abigail Opoku Mensah and Asamani Lebbaeus (2013). The Influence of Employees' Self-Efficacy on Their Quality of Work Life: The Case of Cape Coast, Ghana. *International Journal of Business and Social Science,* 4 (2)

Amal Alsaleha, Maali Alabdulhadib and Noha Alrwaishedb (2017). Impact of peer coaching strategy on pre-service teachers' professional development growth in Kuwait. *International Journal of Educational Research*, 86, 36–49

Amin, M., Shah, S., & Tatlah, I. A. (2013). Impact of Principals/Directors' Leadership Styles on Job Satisfaction of the Faculty Members: Perceptions of the Faculty Members in a Public University of Punjab, Pakistan. *Journal of Research & Reflections in Education*, 7 (2) , 97-112.

Amornrat Soisangwarn and Suwimon Wongwanich (2014). Promoting the Reflective Teacher through Peer Coaching to Improve Teaching Skills. *Procedia - Social and Behavioral Sciences,* 116, 2504 – 2511.

Andrew J. Hobsona, Patricia Ashbya, Angi Malderezb and Peter D. Tomlinsonb (2009). Mentoring beginning teachers: What we know and what we don't. *Teaching and Teacher Education*, 25, 207–216

Azman Ismail et al. (2015). Effect of Mentorship Program on Mentees' Psychosocial Development. *International Letters of Social and Humanistic Sciences Online*, 49, 53-65.

Belgin Aydıntan and Hakan Koç (2016). The Relationship between Job Satisfaction and Life Satisfaction: An Empirical Study on Teachers. *International Journal of Business and Social Science,* 7 (10).

Carla U. Sizer (2008). The effects of mentoring on job satisfaction among military Academicians. *Dissertation of Management in Organizational Leadership*. University of Phoenix.

Christine Pfund et al. (2016). Defining Attributes and Metrics of Effective Research Mentoring Relationships. *AIDS Behavior*, 20, 238–248.

Cynthia Mathieu et al. (2015). The role of supervisory behavior, job satisfaction and organizational commitment on employee turnover. *Journal of Management & Organization*, (22)1113–129. doi:10.1017/jmo.2015.25

Gilbert F. Garcia (2015). The Relationship Between Self-Efficacy and Employee Commitment Among Perfusionists. *Dissertation of Walden University.*

John Whitmore (2017). Coaching for Performance: The principles of coaching and leadership. *Nicholas Brealey Publishing,* Boston, USA, 11.

Kathryn G. Hollywood, Donna A. Blaess, Claudia Santin, & Lisa Bloom (2016). Holistic mentoring and coaching to sustain organizational change and innovation.

Creighton Journal of Interdisciplinary Leadership. (2) 1, 32 – 46. DOI: 10.17062/cjil.v2i1.34

Kathleen Feeney Jonson (2008). *Being Effective Mentor: How to help beginning teachers succeed.* (2nd ed). Corwin Press, California.

Kathy E.Kram (1983). Phrases of the mentor relationship. *Academy of management journal.* 26(4), 608-625

Matthew A. Kraft, David Blazar and Dylan Hogan (2018). The Effect of Teacher Coaching on Instruction and Achievement: A Meta-Analysis of the Causal Evidence. *Review of Educational Research.* 88 (4), 547 –588 DOI: 10.3102/0034654318759268

Merle Wallace (2003). Today's cultural dilemma for the Thai teacher: moral parent and critical thinker. *The University of the South.*

Mei-Lin Chang. (2009). An Appraisal Perspective of Teacher Burnout: Examining the Emotional Work of Teachers. *Educational Psychology Review*, 21, 193–218.

Morena William Nkomo, Wellington Didibhuku Thwala, and Clinton Ohis Aigbavboa (2018). Influences of Mentoring Functions on Job Satisfaction and Organizational Commitment of Graduate Employees. *Advances in Intelligent Systems and Computing*, 596, DOI 10.1007/978-3-319-60018-5_20

Nancy Akhavan & Susan Tracz (2016). The Effects of Coaching on Teacher Efficacy, Academic Optimism and Student Achievement: The Consideration of a Continued Professional Development Option for Teachers. *Journal of Education and Human Development,* 5(3), 38-53. DOI: 10.15640/jehd.v5n3a5

OECD (2020). Economic Outlook for Southeast Asia, China and India 2020, Rethinking Education For The Digital Era. Publishing, Paris, http://doi.org/10.1787/1ba6cde0-en.

Olivier Serrat (2009). Coaching and Mentoring. *International Publications Key Workplace Documents*, Washington, DC: Asian Development Bank.

Per Lindqvist, Ulla Karin Nordänger and Rickard Carlsson (2014). Teacher attrition the first five years – a multifaceted image. *Teaching and teacher education,* 40, 94-103. DOI: 10.1016/j.tate.2014.02.005.

P. Fazel (2013) Learning Theories within Coaching Process. World Academy of Science, Engineering and Technology. *International Journal of Psychological and Behavioral Sciences,* 7(8).

Sangay Drukpa (2010). Job satisfaction of secondary school teachers in Thimphu district of Bhutan. *A thesis of Master Degree of Education*. Mahidol University.

Süleyman Sadi Seferoglu (2000). Peer Coaching: A New Approach in the Professional Development of Teachers. *Education and Science.* The Turkish Education Association, 26(119).

Morgan, M. and Rochford, S. (2017) Coaching and Mentoring for Frontline Practitioners. *Centre for Effective Services*, Dublin.

Teacher Wellbeing Index (2018). Education support partnership. 40A Drayton Park London.

Contact email: sukritta.glow@gmail.com

Home and School Profile Variables and the Students' Academic Performance: Basis for a Proposed Intervention Program

Irene A. Cruz, Eusebio High School, Philippines

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract

This study aimed to determine the relationship of home and school profile variables to the academic performance of the Grade 10 students at Eusebio High School, Division of Pasig City, SY 2018-2019 to serve as basis for a proposed intervention program.Specifically, it pursued to answer the following questions:1. What is the home profile of the respondents in terms of the following variables? a. Socio-economic status, b. Parents' marital status, c. Home location, d. Home environment and e. Parents' attitude towards their children's study habits 2. What is the school profile of the respondents in terms of the following variables? a. School environment, b. Class program, c. Teachers' personality traits, d. Teachers' competence and e. Instructional materials 3. What is the academic performance of the student respondents based on their average grade for the first and second quarter? 4. Is there a significant relationship between the student respondents' academic performance and the following variables? a. Home profile and b. School profile; 5. What intervention program may be proposed based on the result of the study? The descriptive methodology of research was utilized in this study with the questionnaire - checklist as the main instrument used to gather data together with school documents. The statistical tools used to treat the data were the frequency and percentage, mean and Pearsons Correlation.With regard to the home profile of the respondents, majority of them had parents who are high school graduates,having permanent occupation with a family monthly income of 5,000 to 10,000 pesos. As regards the respondents' profile, they often experience good school environment, well-planned class program, competent teachers and adequate instructional materials.Most of the student respondents obtained fairly satisfactory general average grade or that fell within 75-79 grade bracket.There was no significant relationship between the home profile variables and the student respondents' academic performance but a significant relationship between the school profile variables and academic performance.An intervention program was deemed needed based on the result of the study, hence, was proposed by the researcher.

Keywords: Home Profile Variables,School Profile Variables and Academic Performance

iafor
The International Academic Forum
www.iafor.org

Introduction

One of the major concerns of the government is education. Everyone believes that if a child excels or performs well in school, in the future, he maybe one of the great leaders and one of the best citizens who could contribute something for the society and for his/her countrymen. That is why there is a great challenge to these questions; Do students perform well academically in school? Do they have good academic performance? Do we have successful institutions?

The success of educational institutions depends on the students' academic performance. The academic performance of the students in the school is always a major concern of the parents, administrators, teachers and other internal and external stakeholders. As stated by Hardcastle (2010) in the Third World Setting, governments work hard to make sure that their universities, colleges, and basic education center continue to provide a mechanism that can make its citizens intellectually capable so as to contribute to the national economy. This statement was also supported by Kimani et al. (2013) and stated that poor academic performance at secondary school undermines students' chances of joining institutions of higher learning and jeopardizes opportunities for job placement and in most cases reduces an individual's active participation in national development.

Here in Philippines, teachers in both public and private schools are very particular and have very strict and formal monitoring on the results of achievement tests, periodic examinations, quizzes, post-tests and other written works/ outputs/ activities. These are only few of the examples on how to measure the academic performance of the students. Schools are even ranked based on the achievement test. This ranking shows that schools are performing well if the students have good academic performance. For these reasons, the internal and external stakeholders are usually collaborating and cooperating to provide the necessary needs of the students. The teachers were given lots of trainings and seminars for them to provide good quality education.

However, due to researches, surveys, comparative studies, and statistical data reports, the academic performance of the students at present are getting worse, poorer and alarming compared to the academic performance of the students few years ago. If the government, administrators and teachers are already doing their part to improve their academic performance, what are now the different factors that have great effect on the academic performance of the students? Do family problems have effects on the academic performance of the students?

Every quarter, the parents are informed regarding the academic performance of their children. The researcher observed that most of the students in the second bracket, third bracket and in the last bracket are not performing well. Their averages and grades in the different subject areas are very low. Based on the records, the students who are not performing well are the students who have problems at home. Some of the problems that students usually encounter at home pertain to their economic status, broken homes or status of the parents, parents' educational attainment, number of siblings and parents' involvement in the different activities and programs. Based on these observations, the researcher had thought of these questions: "How can students focus on their studies if they lack support from their parents?"; "How can they focus on their studies if they do not have enough sleep because their parents have conflicts

last night which resulted to hurting and fighting?"; "How can they concentrate on their studies if they have an empty stomach? What are the different profile variables that may affect the students' academic performance?

The reason why the researcher conducted this study is because she wanted to find out the relationship of home profile variables and school profile variables to the students' academic performance and to improve more on the findings of the previous studies related to this problem.

Statement of the Problem

This study aimed to determine the relationship of home profile variables and school profile variables to the academic performance of the grade 10 students of Eusebio High School, Division of Pasig City, SY 2018-2019.

Specifically, it sought answers to the following questions:

1. What is the home profile of the respondents in terms of the following variables?
    a. Socio-economic status
    b. Parents' marital status
    c. Home location
    d. Home environment
    e. Parents' attitude towards their children's study habits
2. What is the school profile of the respondents in terms of the following variables?
    a. School environment
    b. Class program
    c. Teachers' personality traits
    d. Teachers' competence
    e. Instructional materials
3. What is the academic performance of the student respondents based on their general average grade in the first and 2nd quarter?
4. Is there a significant relationship between the student respondents' academic performance and the following variables?
    a. Home profile
    b. School profile
5. What intervention program may be proposed based on the result of the study?

Significance of the Study

The results of this study may be beneficial to the following:

Students. This study will help the students to realize the possible relationship of home and school profile variables and their academic performance. This study will serve as their guide to be more positive in achieving their goals in life whatever problems they are encountering. Through this study, the students will be more open-minded and will have a positive mind-set to continue pursuing their dreams in life.

Teachers. The result of this study will guide the teachers in identifying the needs of the students to be able to address their needs. This will guide them on what programs,

projects or activities they need to support to improve the academic performance of the students.

Parents. Through this study, parents will realize that they should support their children in achieving their goals in life. It is not only for their self-improvements but to be functional literate Filipinos who will be more responsible member of the family, community and the nation. Parents will be guided by the teachers and administrators through mentoring, good parenting seminars/trainings and team buildings involving their children and others members of the community.

School Administrators. The result of this study would help them to address the needs of the students who have poor academic performance due to the different home and school profile variables. This study will serve as their guide and reference to further discover the other factors affecting the academic performance of the students which sometimes may result to the poor achievement test as well as may affect the performance indicators of the school. This research will motivate them to think of possible positive reinforcements and interventions to address this issue. As administrators, it is not only their duty to manage and identify present and future problems, but it is also to make sure that the students' needs are prioritized. The needs of the students do not only pertain to material things but to attention and support that will make the students feel that they belong in the school and in the community in spite of what they are experiencing.

Other External Stakeholders. The result of this study would give them ideas on what possible programs and activities they might give to the parents and students who also play vital roles in the society. The researcher believes that other people can also help in the improvement of the students.

Researchers. This study could be a useful reference for them in conducting similar studies which will benefit the above mentioned people.

Scope and Delimitations of the Study

This study focused on the home and school profile variables and the academic performance of the Grade 10 students at Eusebio High School, Division of Pasig City during the school year 2018-2019.

The study was limited to 263 grade 10 students. The home profile variables investigated in the study were limited to the student respondents' socio-economic status, parents' marital status, home location, home environment and parents' attitudes toward their children's study habits. On the other hand, the school profile variables were limited to school environment, class program, teachers' personality traits and teachers' competence.

Methods of Research

This study used the descriptive type of research**.** Descriptive method as defined by Sevilla (1984:20), involves collection of data in order to test the hypothesis or to answer questions concerning the status of the study and to expose the causes of particular phenomena.

This method of research was chosen by the researcher to enable her to describe quantitatively the relationship of home and school profile variables and the students' academic performance.

Sources of Data

The data were sourced from the 263 Grade 10 students of Eusebio High School during the school year 2018-2019. All the 18 sections of the Grade 10 Level were included by the researcher. The distribution of the respondents per section was reflected in Table 1.The student respondents were selected through a systematic random sampling from 761 student population. The researcher used the Slovin's formula with .05 marginal error.

Conclusions

The study generated the following findings:
1. With regard to the home profile of the student respondents, majority of them had parents who are high school graduates, having permanent occupation, with family monthly income of ₱5,000-₱10,000, and living together in a residential area. With regard to their home environment, the respondents sometimes experience activeness of their family and intellectuality at home as well as supportiveness of their parents in their study habits.
2. As regards the respondents' school profile, they often experience good school environment, well-planned class program, competent teachers and adequate instructional materials.
3. Most of the student respondents obtained "fairly satisfactory" general average grade or that which fell within 75-79 grade bracket.
4. There was no significant relationship between the home profile variables and the student respondents' academic performance but a significant relationship between the school profile variables and the student respondents' academic performance.
5. An intervention program was deemed needed based on the result of the study, hence, was proposed by the researcher.

Based on the findings of the study, the following conclusions are drawn:
1. Most of the parents of the student respondents have low socio-economic status and only get minimal support from their family with regard to their schooling.
2. The school profile provides the needed support for the studies of the student respondents relative to class program, teachers' personality traits and competence and instructional materials.
3. The student respondents' academic performance is low based on their general average grade.
4.The home profile had no bearing on the student respondents' academic performance but the school profile did relate to the said variable.
5.There is a need for an intervention program.

Recommendations

The succeeding recommendations are offered based on the findings and conclusions of the study.

There must be a parent-orientation on their duties and responsibilities to their children. Some of the important reminders to be discussed are the following:

1. Parents should strive more to support their children's studies.
2. Parents should do their best to build a strong and good relationship with one another for them to stay together and live together for the sake of their children.
3. Parents should motivate their children to study hard in spite of their socio-economic status, as it is only one of the challenges in life one has to surpass. They should keep on inspiring their children on the importance of education.
4. Parents should not only focus on the physical attributes of home but look also on its attributes which comprise a healthy environment. A healthy environment includes the participation of its family members.
5. Parents should be more supportive and be more sensitive to the needs of their children; and instill in them that education is a great investment.
6. There must be a reorientation on the following:
   a. Crafting of the school program/class schedule.
   b. The use of library and other sources of information
   c. The competence of teachers in the integration of ICT inside the classroom.
7. The proposed intervention program maybe considered in the school.
8. The proposed program must be presented to the School Head, Administrative Staff and Planning Team for them to consider it as inclusion in the School Improvement Plan.
9. A similar study should be conducted by the future researchers in other schools to determine if similar results will be found and another study covering other variables or other areas of concern and with different respondents.

Acknowledgement

The researcher would like to express her deepest gratitude and sincere appreciation to the following people who have extended priceless contributions for the successful completion of this research work.

First and foremost to the **Lord God Almighty** who guided her, gave her wisdom,strength and good health in finishing this study;

To Mr. Domingo N. Viñas, the principal of Eusebio High School for his support, understanding and assistance in the improvement of this study;

To Mrs. Rosanna R. De Guzman,the Head Teacher of the English Department, for her patience and considerations;

To Dr. Evalou Concepcion,the Schools Division Superintendent of Pasig City for the support.

To Mrs. Evelyn B. Yarin, Mr. Arnel R. Asuncion, Mr. Ray Mon F. Pereyra, Mr. Raffy D. Maga, Mrs. Gemma L. Robillos and Mr. Christian Bjorn R. Cunanan for the pieces of advice, additional knowledge and encouragement to finish her study;
To her support group in the English Department,Science Department and Math Department for the extraordinary push and encouragement;

To the Grade 10 students of Eusebio High School for their participation and precious time in answering the questionnaire;

To the Grade10 students from sections Maxwell,Becquerel,Hertz,Snell and Pascal for their support and encouragement to the researcher, especially to Markuz Artillaga, Kyle Malaluan,Rey Mark Eteroza, Paul Isiderio,Joseph Quezada,Lydian Rotaquio and John Tañada;

To the administrators and the teachers of Eusebio High School especially the Grade 10 advisers for providing her the necessary documents needed for her study;

To her husband, Aaron C. Cruz, for his extraordinary support and understanding during the conduct of the study;

To her mother, Evangeline C. Arciaga, sisters and nieces for their unending prayers and support which encouraged the researcher to pursue her study;

To all people whose names were not mentioned but contributed to the realization of this piece of work, her sincere thanks and gratitude.

References

Books/Reports

Hamilton,L.T. (2016). Parenting to a Degree: How Family Matters for College Women's Success**.** University of Chicago Press

Ransaw, T. (2016). Closing the Education Achievement Gaps. Michigan University Press

Thesis/Dissertations

Ali,S. et al. (2013). Factors Contributing to the Students' Academic Performance Unpublished Thesis

Aggarwal,S.(2014). Factors Affecting the Academic Performance of the Students Unpublished Thesis

Arceo et al (2013). Factors Affecting the Academic Performance of the Students in the Polytechnic University of the Philippines. Unpublished Thesis

Bilasa,R. (2015). Teacher Competencies and Its Relation to Academic Performance of the Selected Grade 10 Students in San Isidro National High School. Unpublished Thesis

Chauhan (2013). Factors Affecting the Performance of the Students. Unpublished Thesis

Egunsola, A.O.E., (2014). Influence of Home Environment on Academic Performance of Secondary School Students in Adamawa State Nigeria. Unpublished Thesis

Gato et al. (2014). Factors Affecting the Academic Performance of the Students. Unpublished Thesis

Guptu, R.P. and Katoch, K. (2013). A Study of Socio-Economic Status of 10th Grade Students. Unpublished Thesis.

Junio, J. et al. (2016). Factors Affecting Students' Performance in Lyceum of the Philippine University-Laguna. Unpublished Thesis

Khan, A., Khan S., Khan, S. Z., and Khan, M. (June 2016). Impact of Teacher's Personality on the Academics of the Students. Unpublished Thesis

Kimani, G.N. et al (2013). Teacher Factors Influencing Students' Academic Achievement in Secondary Schools in Nyandarua, Kenya. Unpublished Thesis

Korin, D. K. (2014). The Impact of School Environment and Peer Influence On Students' Academic Performance, Vihiga, Kenya, Masters' Unpublished Thesis

Mweti,J.M. (2013). Socio-Economic Factors Influencing Students' Academic Performance in Public Secondary in Igenbe, South District Kenya Unpublished Thesis

Nwike, J. (2013). Effects of Instructional Materials in the Students' Academic Performance

Olaitan,A.W.(2017). Impact of Family Structure on the Academic Performance of Secondary Students. Unpublished Thesis

Obeta,A.O. (2014). Home Environment Factors Affecting Students' Academic Performance in Abin State of Nigeria. Unpublished Thesis

Ogbemudia and Aiasa (2013). Environmental Factors Affecting the Students' Performance in Ghana. Unpublished Thesis

Journals/Articles

Research Journal in Organizational Psychology and Educational Studies: Retrieved December 15,2018 from https://rjopes.emergingresource. org./articles.pdf

Philippine News Asian Journal San Diego:Retrieved Jan.,2015 from File:///D.L.//RRL/AsianJournalSanDiego.original

Internet Sources

Berkowitz et al (2015). Influence of Family in the Students' Academic Performance: Retrieved December 5,2015 from https://www.Internationaljournalofresearchandeducation.International Journal of Education and Research,1(5).

Garcia,C. (2015). Factors Affecting Students' Academic Performance. Retrieved: September 25, 2017 from https://www.International

"No One Left Behind" – Designing A Conceptual Framework for Nurturing a Data-Literate Mindset in Higher Education Administration

Ji Hu, New York University Shanghai, China
Xuchu Meng, New York University Shanghai, China

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract
As Higher Education Institutions (HEIs thereafter) are eagerly engaging data-informed decision making, attentions are mostly put on setting up specialized data teams for the job, but much less on nurturing data-literate mindset and capacity of the administrative team as a whole. This missing link leads to at least two issues that can undermine the efforts towards effective data-informed decision making. The first is "garbage in, garbage out". Most data the data people are working on comes from the seemingly non-data-related workers. The second is the loss of competencies or motivations for the non-data people to produce better quality work in today's innovative environment. As an attempt to fill the gap, a conceptual framework is proposed in this working paper to tackle the question of how to nurture a data-literate mindset – to be curious about and aware of the importance and implications of data, before being able to work with it (Bhargava & D'Ignazio, 2015) – in workers of higher education administration. Benefits of employing Backward Design Model (Wiggins & McTighe, 1998) as methodology to develop this framework is discussed. Common misconceptions around data, identified in practice, are mapped against Bloom's taxonomy of cognitive development (Bloom & Krathwohl, 1956). Last, the working paper discusses future work to operationalize the framework and to evaluate the effectiveness of such training in enhancing institutional data efforts.

Keywords: Training Framework, Data-Literate Mindset, Higher Education Administration, Backward Design Model

iafor
The International Academic Forum
www.iafor.org

1. Introduction

When more higher education institutions (HEIs), actively or passively, are brought into the information age, both the growing awareness of benefits that can be generated from data (Huron, ACE & GIT, 2019) and the increasing volume of data that is collected (Wilsdon et al. 2015) call for a certain level of data literacy of the administrative workers to inform their daily operation. However, among the data literacy training frameworks that have been proposed, which target different audiences (Wolff et al., 2016), proficiency levels (Qlik, 2018), or even organizational development phases (Sternkopf, 2017; Sternkopf & Muller, 2018), competencies and skills that are commonly required of specialists prevail (Bonikowska et al., 2019). What is often underrepresented in the established work around data literacy training is the necessity and ways to engage data non-specialists (OECD, 2017), who are mainly workers not in traditionally-viewed data-intensive functions or roles.

The same trend is seen in higher education. While HEIs have been growing teams and building capacity of "data specialists" like institutional researchers, learning analysts, or data librarians (Swing, 2016; Kim, 2018), they are also called on to place efforts elsewhere. There is rising concern that data of poor quality can greatly undermine the efforts to drive insights from analytics, as suggested in established studies. Early research work indicated direct relationship between data quality and individual work (Wu & Wang, 2006; Santos, Tokaoka & de Souza, 2010). Evidence was also found that validates the relationship of data quality and organizational outcomes (Sheng & Mykytyn, 2002). Despite its root in Information Systems research, work on data quality is also emerging in the context higher education. Jim and Chang (2018), in their work on data governance among universities, claims that "data quality is the foundation of the data-driven decision-making process", and low quality data leads to misleading and ineffective analytical results. Issues categorized into "Trusted Data" have been on the top of EDUCAUSE's (a higher education IT community) "2019 Top 10 IT Issues" (Grajek, 2019). In response, HEIs started to hire data management professionals, assemble data governance committees, or implement data quality tools (Hayhurst, 2019). However, a significant portion of the data on which specialists work often comes from the administrative by-products of work done by non-specialists (Australian Bureau of Statistics, 2011). Most data quality issues also come down to a lack of data quality assurance mechanism in non-specialists' work, or in other words, neglect of engaging them into the institutional data efforts. The illusory belief that non-specialists do not work with data only makes specialists' work harder because the quality of data cannot satisfy analytical needs (Australian Bureau of Statistics, 2011).

Developing a sense of data among non-specialists is vital, also because in higher education, student success and research development are collaborative work (Cavanagh, 2019) that assumes informed decisions at all levels and aspects of the university, not only in centralized offices. Trend of data democratization in higher education emerges that aims to extend direct access to institutional data to even non-specialists, and to empower them to utilize data (Harfield, 2017). This trend is fostered by both operational needs and technological possibility. Increasing demand of data from both government agencies and the general public is pressuring HEIs to work beyond the capacity of their traditional data-centric functions (Swing, 2016). The time lag caused by routing data requests to specialists raised concerns about the

timeliness of findings to inform practice (Petrides, 2004). Meanwhile technological advancements simplified the work to query and use institution-wide data through tools such as web-based dashboards, which allows workers to access and use data with minimum training requirements (Petrides, 2004). However, insufficiency of intent or confidence to adopt data-informed decision-making beyond the "specialist community" still prevails (Laskovsky & O'Donnell, 2018). Most existing data literacy training programs are developed in the context of for-profit organizations. The trouble that HEI workers have to transpose the knowledge to the special setting of higher education further impedes data adoption among non-specialists in HEIs (Laskovsky & O'Donnell, 2018).

That said, HEIs need to find a way to effectively combat the siloed nature of traditional data practice that is overly concentrated on "data specialists". This working paper proposes development of a conceptual framework for nurturing a data-literate mindset of HEI administrative workers, especially non-specialists who used to be left out.

2. Data-Literate Mindset

The term of data-literate mindset in this article—built upon the exposition of data literacy by MIT—is defined as the awareness and curiosity of the importance and implications of "the ability to read, work with, analyze, and argue with data" (Bhargava & D'Ignazio, 2015). When most existing data literacy training programs are tailored for specialized personnel, they set natural barriers for reaching non-specialists. Both the training materials about advanced skills and techniques of working with data, and variety of prerequisites on proficiency levels of the trainees are intimidating to regular administrative workers of HEIs. Therefore, evoking the curiosity and awareness of the benefits of data to both the institution and workers themselves is a critical first step to bring non-specialists into the data world - to secure their adoption and buy-in (Qlik, 2018). In his bestseller book "Drive", Daniel Pink argues that motivations in completing tasks that require cognitive and creative skills are dominated by intrinsic factors, one aspect of which is purpose, "the desire to do something that has meaning and is important" (Pink, 2009), which is the foundation of buy-in.

For HEI administrative workers, the "meaning" and "importance" of data is that data has already been incorporated into the ways of how their daily work is shaped, and underlies the quality of their work (Sandler Training, 2019). A data-literate mindset here entails the awareness that data is an inherent part of their existing responsibilities, not additional burdens; and the curiosity about the possibility how their work and daily decision-making can be improved by actively leveraging the power of data, against instinct or snap decisions.

3. Utilizing Backward Design Model to Design Data-Literate Mindset Training

Despite importance of professional training to prepare higher education workers for the evolving responsibilities of their positions (Holzweizz, Walker & Conrey, 2018), it is poorly implemented when related to data (Laskovsky & O'Donnell, 2017). In HEIs, data is often an assumed skillset (Laskovsky & O'Donnell, 2017), and not considered professional development priorities (Knight, 2014). Professional needs in

data, thus, are not clearly defined, causing lack of relevance in training materials and programs (Florian & Hegarty, 2004). It is proposed that Backward Design Model be employed to design data-literate mindset training. The model is originally developed for course design, but applies equally to professional training. Instructors typically develop a course by first designing activities through which the content is taught, then aligning assessments with the activities, and finally drawing connections to learning goals (Bowen, 2017). Backward Design Model, however, reverses the process, featuring three sequential stages, "identify desired results", "determine acceptable evidence", and "plan learning experiences and instruction" (Wiggins & McTighe, 1998). At the first stage, expected learning outcomes are defined with different levels of priority. It is to answer the question "what is expected of the learners when they complete the course". Wiggins and McTighe (1998) provided guidance to establish curricular priorities, where expected outcomes are positioned along the spectrum of worthiness. For example, within the available time and resources, enduring understandings, as compared to knowledge only "worth being familiar with", is given higher priority. The second stage is where instructors determine what assessment evidence is acceptable to demonstrate accomplishment of the expected learning outcomes. Assessment can be conducted in various forms, but need to provide direct evidence on whether the learning goals are met. Otherwise it becomes nothing but an additional burden for both instructors and learners. At the final stage, instructors design teaching as a means to an end, in terms of what to be taught and how. Instructional resources and teaching strategies are designed at this stage against the expected learning outcomes and assessment methods. The benefit of this model is obvious. It focuses limited resources on a clear pathway towards expected outcomes of learners, and eliminates learning activities that are purposeless and thus useless in achieving this goal. Given its natural emphasis on learning outcomes, employment of this model guarantees the relevance of data-literate mindset training, which is lacking in most data training programs for higher education workers.

3.1 Breaking Common Misconceptions of Non-Specialists Around Data

The "fuzzy concept" of data-literate mindset, however, makes it hard to identify a specific and concrete list of learning outcomes without knowing the context where this concept is to be applied. On the other hand, practical knowledge indicates that there are common misconceptions around data among higher education workers, especially non-specialists. These misconceptions prevent them from producing quality data and actively utilizing data in their daily work. The efforts to develop a conceptual framework of data-literate mindset training also entail debunking and breaking these misconceptions. Since it is hard to elaborately characterize a data-literate mindset, this working paper explores and challenges the boundary of this concept with its application in higher education administration, by demystifying misconceptions that are outside of this domain. In order to streamline the efforts of identifying these misconceptions that are of a practical nature, they are mapped against Bloom's taxonomy (Bloom & Krathwohl, 1956), which provides an actionable roadmap for HEIs to operationalize this concept in their own specific contexts.

Bloom's taxonomy is a model for instructors to identify educational learning objectives along a spectrum of cognitive complexity (Adams, 2015). It was devised by a group of educators in 1950s, and since then has wide usage and significant influence on teaching and learning practice (Adams, 2015). The taxonomy consists of

six categories of cognitive learning objectives, "knowledge, comprehension, application, analysis, synthesis, and evaluation" (Bloom & Krathwohl, 1956). A learner that masters the all six levels is expected to be able to memorize learned material, grasp the meaning, transpose it in new contexts, deconstruct and reconstruct it, and eventually perform value judgement on it. The six categories differentiate between levels of complexity and specificity, respectively requiring skills ranging from lower order that needs less cognitive processing to higher orders (Adams, 2015). In accord with the logic behind backward design, Bloom's taxonomy is also beneficial by calling attention to developing learning objectives across foundational and advanced level skills. Following discussion outlines the six stages that higher education workers are to proceed through in breaking data-related misconceptions. Higher education workers with a data-literate mindset are expected to be able to understand the concept of data (3.1.1), show evidence of comprehension through paraphrasing it in the context of their own work (3.1.2), apply the concept to redefine quality work (3.1.3), break down institutional data flow into elements to define data quality (3.1.4), reunion data elements to form data reporting (3.1.5), and finally critically judge the value brought by data (3.1.6).

3.1.1 Knowledge of Data Concept

The foundation of the data-literate mindset is an inclusive and adaptive understanding of the concept of data. A typical impression of data is numeric, or sometimes aggregated information that is stored in data warehouse, passed through equations, and presented in dashboards or tabular reports, naturally leading to a sense of detachment if one's work does not seem to involve numbers beyond elementary calculations. However, technology advancement has allowed us to access and treat "non-typical data" in the same way as quantitative information (McEvoy, 2018). Qualitative data is a primary source of "non-typical data", and the datasets they form make up a significant portion of the environment around us and broaden the range of insights that can be gained. Thus, data are not necessarily numbers. They can also be words, which could communicate even more information than pure numbers. Equally important is a type of data called metadata. It is also known as the data of data, which helps explain and interpret the attributes of each piece of data. Nonetheless, this is not the entire big picture to be seen with a data-literate mindset.

Among the definitions of data, though nonconsensual, one factor remains consistent that a macro understanding of data subsumes the action performed on data (McEvoy, 2018). The value seen in data that necessitates "data" literacy is not inherent, but achieved through collecting, measuring, reporting, analyzing and visualizing data (McKenna, 2018; Wikipedia, 2020). A data-literate mindset does not define data by rigid rules or restrict the concept to a fixed scope. It rather conceptualizes data according to the reason why it is gathered, the way how it is processed, and the intension of how it is to be utilized. This mindset recognizes data by answering the question, "is this as useful as what is purposed for data", not a simple "is this data". Classroom capacity is data to traditional HEIs, just as bandwidth to institutions only offering online programs. Data is a contextualized concept. It actually depends on the functional and analytical needs of the institution, to determine what is data, and what needs to be treated with the same standards under the umbrella of institutional data management. Building such a resilient but targeted understanding of data concept

underlies the higher level of a data-literate mindset, which is to paraphrase it in the context of one's own work to provide evidence of comprehension.

3.1.2 Comprehension towards Data Relevance

A narrow perception of data leads to a misconception that data is irrelevant in one's work. Non-specialists usually feel that they do not work with data, but that is a total myth. While it is true that not everyone codes, or uses statistical software such as SPSS, they enter information in spreadsheets or systems, design surveys or webpages to collect input, and make key decisions about which data gets digitized or disposed (Tozzi, 2017). Higher education workers that manage and follow students along their registration pipeline are key to tracking student data divergences. Those that collect paper documents, such as passports, in support of faculty and staff hold the opportunities to enrich institutional digital datasets. Those that utilize operational systems to automate business processes are the designers of institutional data structures, though in most case they are not conscious of this.

A data-literate mindset brings those lightbulb moments when trainees realize that their work contains "data" as well, succeeded by a further question "to what extent and in what ways". Each administrator's work contains diverse data, while same data is of relevance to different administrative roles in diverse ways. Similar to data concept, the effort to identify data relevance but make no reference to the context is bootless. For example, to assist with visa applications, the workers on migration should gather geographic origin data of students. Wrong information would result in a rejection that compromises student's academic progress. However, the same piece of wrong information may mean nothing when kept in a spreadsheet managed by course planning and enrollment. The story gets reversed in an online university, where this same error of failing to accommodate time differences during course scheduling affects student learning just as much.

Thus, the mindset that is proposed in this framework is one that is able to identify what exists in one's work that is valuable to understanding and improving the way how one works and how the institution functions. This is to be further applied by the trainees to appraise their work through the lens of data, at the third level of Bloom's taxonomy.

3.1.3 Application in Data Quality

Modern higher education administration is greatly shaped by the increasing role of evaluation in higher education, resulted from growing competition for resources and thus demand for HEIs to demonstrate effectiveness (Heck, Johnsrud & Rosser, 2000). An essential object of the measurement towards institutional functioning is the evaluation of worker's performance, which has long been based on the worker's role and what is expected out of it (Heck, Johnsrud & Rosser, 2000). In addition to professional expertise required in specific functions, general administrative competence, such as whether rules are understood and followed, has been at the core of worker evaluation (Bider, 2008), while "data" is only treated as a by-product of administrative processes, and has little or no presence in the accountability schema of higher education administration. However, the increasing relevance of data leads to changing expectations and roles of higher education workers, and subsequently a

review of evaluation standards (Flaniken, 2009). A data-literate mindset accepts that one's performance is evaluated not only through traditional measurements of administrative effectiveness, but also on the quality of data produced from or utilized in one's work. As a major force for behavioral changes, the changing mindset about the evaluation mandates of one's work underlies the changes in ways one's work is carried out.

Similar to data relevance that varies from role to role, requirements of data quality are specified in context. HEIs collect data through a variety of forms. A major source is declarative data, which is gathered through active participation of data subjects, e.g. via surveys (Hagan, 2017), such as students self-reporting their nationalities, or in an extended form, workers recording their nationalities according to information on their passports. At all events, major quality concerns of this type of data are completeness and correctness, which are to be bore by the workers handling the process. Those that work with behavioral data, however, are subject to different expectations, which involve higher levels of data collection skills and greater vigilance for misuse. Developing the accountability for data quality is a key step, but trainees are yet to be equipped with the ability to benchmark quality data, until they approach the fourth level of the data-literate mindset.

3.1.4 Analysis of Data Flow

The previous three levels focus on "why" non-specialists should care. The analysis level, however, where what is commonly thought of as critical thinking enters (Adams, 2015), starts to discuss "how" to work with data in their current capacity. A data-literate mindset is able to discern relevant data and benchmark quality of data by positioning oneself in the institutional data flow. In other words, trainees progress from knowing that data exists and data quality matters, to knowing how to find the data that exists and to improve the quality of that data. To cultivate a way of thinking leading to this goal, a major roadblock is a siloed culture in which workers operate. Higher education is a field that is no stranger to operational silos, from independently-functioning academic departments (Friedman, 2018), to traditional process-based division of functional areas (Commondore, etc., 2018), which is one of the major reasons why data is commonly viewed as a specialist work siloed in a centralized department or team. However, among the entire data life cycle, usage (or simplified to analytics) is only one of the stages (Chisholm, 2015). All stakeholders, who play a role in data life cycle, participate in provision of quality data programs, from data capturers, custodians, to analysts. These roles and responsibilities, which used to appear to be silos, are connected to each other along the institutional data flow.

Contextualization of data quality requirements in one's work, as mentioned in the third level of taxonomy, does not happen in isolation, because consequences of poor quality data may reveal themselves in latter phases of the data flow within the institution. Thus, quality data is not only data that fulfills the purpose of one's work, but also that meets institutional goals. Given prevalence of spreadsheet work within higher education administration (Laskovsky & O'Donnell, 2017), it is expected that a higher education worker who prepares a spreadsheet to be shared should have good understanding of the purpose of this spreadsheet to all intended users, and make sure it fulfills the purpose for which it is intended. One that makes modifications or additions to the spreadsheet should be aware of the risk of creating a duplicate dataset

that contains outdated information, which could mislead future users. One that uses the spreadsheet should never forget to check metadata instructions and risk misinterpretation, just as "staff member" can be defined in ways distinct from intuition (Laskovsky & O'Donnell, 2017).

3.1.5 Synthesis for Data Reporting

If there is one piece of data work that is not uncommon to higher education workers, even data non-specialists, that is data reporting. Common practice of data reporting in higher education has been operated under the silo mentality at both the front and back ends. Reporting requirements overlap and sometimes duplicate across multiple levels or departments of government and agencies, but the platforms utilized by reporting entities vary (Whistle, 2017). This needless burden on HEIs to tailor and duplicate their work for each report exhausts institutional resources and operational agility for better proactive planning. Thus, instead of a streamlined process that attempts to present the institution in accurate and optimal ways, data reporting has been conducted through rough combination of data from different functional areas. The comprehensive nature of data reports that HEIs are required to complete today adds to the difficulty. However, the original intension of data reporting was to benefit both the institutions that report data and entities that use data (Whistle, 2017). During the wave of accountability in higher education, institutions are demanded to report institutional data to demonstrate effectiveness (Brown, 2017), which later becomes ways for public to know the institution, and leverage for policymakers to execute control (Heck, Johnsrud & Rosser, 2000). Though long viewed as a burden that is additional to regular administrative work, data reporting, in fact and as intended, is one of the ways data gets utilized in HEIs. A data-literate mindset recognizes data reports as obligations and opportunities to transparently present one's work for evaluation.

Conducting data reporting in an optimal way takes a data-literate mindset that is able to clarify how data flows through the institution, and accordingly deconstruct the components of institutional data, to reconstruct the large puzzle by shuffling and rearranging these data pieces. Higher education data has been criticized for lack of adequacy and actionability (Whistle, 2017), largely due to the roughness of the way data gets prepared within HEIs. Instead of simple aggregation or calculation, higher education workers should understand meaningful ways of performing these actions. In a data report, questions need to be asked, such as "does the current classification of faculty appointment types accord with their teaching records", or "is classroom capacity or student enrollment a better metric for this purpose".

3.1.6 Evaluation of Data Analytics

In higher education, similar to other industries, there seems to be a natural divide between strategic planning and tactical implementation (Frølich, Stensaker & Huisman, 2017). While the significance of data on informing decision-making at strategic levels cannot be over-emphasized, it is often neglected in day-to-day decision-making that supports ground-level implementation and administration (Laskovsky & O'Donnell, 2017). It is true that typical data analytics projects in HEIs, which occupy majority of institutional data resources and capacity, aim at strategic-level topics such as admissions research, learning analytics, or program effectiveness

(Delaney 2008). However, the power of data applies equally to day-to-day decision-making at the ground level.

A data-literate mindset demystifies the perceived barriers to access, analyze and use data among non-specialists. The real truth is that workers have first-hand data about their own work that is needed to drive decisions. Most day-to-day decision-making can be conducted in a more informed way with minimum requirements of specialized data skills. Change management is prone to higher rates of success with usage of data that enables evidence-based decision-making. Managers and workers are to answer these questions with more solid roots in data, such as "where is team spending time", and "how may the business process change affect administrative efficiency". The popularized mindset towards utilization of data analytics is more important in an era of data democratization, where data becomes more accessible to non-specialist users (Laskovsky & O'Donnell, 2017).

In addition to the data democracy dividend, it is just as important for workers to mind the risks accompanying the growing awareness of the potential of data, necessitating more cautious and responsible approaches to data. A bevy of research has been done on the way users get deceived by data (Huff & Geis, 1993). Beyond ineffectiveness of conclusions, recent work has also revealed ethical concerns of inappropriate processing or use of data despite its aim that is quite the opposite (Berens, Mans & Verhulst, 2016). For example, if student financial aid is to be affected by decisions made upon data, misinterpretation of the situation leads to inequity. Attention should also be paid to rising advocacy for data privacy, such as GDPR or FERPA, which is changing the landscape of higher education data efforts.

Below is a quick reference table comparing the misconceptions commonly seen among higher education administration, and shift of those under a data-literate mindset.

Traditional Mindset	Data-literate Mindset
Data is statistics.	Data is an inclusive and contextualized concept.
I do not work with data.	Everyone works with data, in different ways.
Workers are evaluated by administrative effectiveness.	Worker appraisal involves evaluation of the quality of data, produced from and used in one's work, which happens in specific contexts.
Data that fulfills my needs is good quality data.	Consequences of poor quality data may be reflected in other stages of the institutional data flow.
Data reporting means providing the data I have.	Data reporting incorporates integration of data pieces into the larger institutional puzzle, and is an opportunity and obligation to display for evaluation.
Data analytics is the solution for high-level decision making.	Data analytics is a tool that is applied to all levels of decision-making, and needs to be used with caution.

Table 1: Comparison of Perceptions under Traditional and Data-literate Mindsets

3.2 Evidence and Experiences of Training a Data-Literate Mindset

Higher education institutions share similarities in functionality that allows alignment of training goals. However, ways of evaluating learning outcomes and designing learning experiences need to be catered for each specific training program. Thus, following sections focus on a general direction to developing a solid data-literate mindset training program.

Administrative skills are often taken as a given, especially in higher education settings (Bider, 2008; Laskovsky & O'Donnell, 2017). Organized professional training for workers, therefore, is usually general, optional, and flexible. Seldom does professional training incorporate systematic evaluation of learning outcomes (Klenowski, Askew & Carnell, 2006). Survey results provided by participants are commonly used as a substitute. However, this declarative data suffers from potential biases. Lack of appropriate evaluation of learning outcomes not only prevents the institution from assessing and adjusting its training programs, but also reduces motivation of participants. Among impediments to professional training in higher education administration, lack of relevance, along with imbalance between perceived gain and occupied working hours, is key to be addressed for an evaluation system to do more good than harm (Facteau et al., 1995).

Project-based assessment, which is a method to assess performance through projects, is well-suited for overcoming these barriers (Wong & Siu, 2018). It requires deployment of multiple levels of cognitive learning objectives to contribute to a cumulative project (teAchnology, 2020), and presents evidence of learning outcomes in the process of solving problems and making decisions. Flexibility in determining the topics of the projects to work on is a powerful stimulus for participants, which is an area where they usually do not have as much freedom from instructors' interference. It also allows participants to integrate the assessment projects with functional needs in day-to-day work to reduce opportunity costs. Participants' completed work that addresses instant business priorities can be put into production, which is helpful especially to institutions at early stages of building data-informed models.

A transformation of evaluation is linked to a transformation of the specific learning experiences of participants. Common practice of professional development in HEIs is still conducted in outdates ways that lack engagement of participants (Brown et al., 2015). Research has shown that employing active learning significantly improves learning outcomes (Freeman et. al, 2014; Michael, 2006). Although the discussion mainly concerns traditional students, it applies equally, or even more preferably to professional training, where participant motivation plays a larger role. Multidimensionality of active learning requires careful selection of approaches to facilitate engagement in different cognitive processes (Markant et al., 2016; Menekse et al., 2013). Further work has been done to provided vast and varied resources for training developers to design specific instructional and learning experiences. Active learning activities are compiled that instructors can refer to as techniques to engage participants and perform formative assessment, (Yee, 2019). Dimensions of learners' engagement are identified to frame appropriate selection of active learning techniques (Fredricks et al., 2004).

4. Implications and Future Work

Emergence of tools that facilitate easy access to institutional data leads HEIs farther into the unprecedented and irreversible trend of digitalization and connectivity. Nevertheless, there is wide agreement that capacity shortfalls in centralized data offices such as Institutional Research are preventing HEIs from full commitment (Swing, 2016). Derived from this conflict between rapidly increasing awareness of the power of data and slowly growing capacity of data specialists, data democratization becomes an inevitable choice of HEIs. Wider and easier access to data for everyone has established a solid foundation for data democratization. However, these efforts are greatly undermined if a data-literate mindset is not established among non-specialists, who are key players in safeguarding institutional data quality.

Drawn on previous research and practical knowledge, this working paper proposes a conceptual framework for nurturing data-literate mindset among higher education administrative workers, especially data non-specialists. The framework is aimed as a reference for higher education practitioners in their efforts to enhance institutional data through engagement of non-specialists. The paper then discusses the relevance of Backward Design Model as methodology to develop such a framework. Common misconceptions of non-specialists around data identified in practice are mapped against Bloom's taxonomy of learning objectives, as a roadmap to operationalize the framework in HEIs (Bloom & Krathwohl, 1956). Prevalence of online learning and rapidly upgrading skill requirements of data are shaping the landscapes of both data education and professional training, and undermining the effectiveness of traditional training in data literacy. The working paper also aims to advocate that higher education institutions provide context-specific enrichments to the proliferated field of data education, by exploring the uniqueness and complexities of data in higher education settings. It is as essential for higher education to become an active participant in the dialogue about data, as to be a strong data user.

Future work is to be conducted to operationalize the framework in specific contexts in HEIs, which in return would enrich the preliminary results in this working paper. In implementing the training programs, empirical evidence is to be collected and analyzed to understand whether and to what extent is such training effective to enhance institutional data efforts. It is expected that further theorization formalized around the findings may develop solid guidance for HEIs to facilitate their transformation towards data-informed models.

5. Acknowledgement

This training framework was originally conceptualized and developed at the Course Design Studio hosted by Dr. Jace Hargis, Director of Center for Teaching and Learning at NYU Shanghai

References

Abraham, I. (2016, March 30). *Digital transformation: People are the irreplaceable changemaker*s. Retrieved from https://www.accenture-insights.nl/en-us/articles/digital-transformation-disruption-automation.

Adams, N. E. (2015). Bloom's taxonomy of cognitive learning objectives. *Journal of the Medical Library Association*, 103(3): 152-153.

Australian Bureau of Statistics. (2011, November 22). *Types of data sources*. Retrieved from https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/4533.0Chapter52011.

Berens, J., Mans, U., Verhulst, S. (2016). *Mapping and comparing responsible data approaches.* Retrieved from http://thegovlab.org/just-released-mapping-and-comparing-responsible-data-approaches/.

Bhargava, R., & D'Ignazio, C. (2015). Designing Tools and Activities for Data Literacy Learners. In *Wed Science: Data Literacy Workshop*. Oxford, UK.

Bider, I. (2008). *Evaluating and improving quality of administration*. Retrieved from http://www.ibissoft.se/whitepapers/admquality.pdf.

Bloom, B. S., & Krathwohl, D. R. (1956). *Taxonomy of educational objectives, Handbook I: Cognitive domain*. New York, NY: Addison-Wesley Longman Ltd.

Bonikowska, A., Sanmartin, C., Frenette, M. (2019). *Data literacy: What it is and how to measure it in the public service*. Canada: Statistics Canada.

Bowen, R. S., (2017). *Understanding by Design*. Vanderbilt University Center for Teaching. Retrieved from https://cft.vanderbilt.edu/understanding-by-design/.

Brown, D., Chheng, S., Melian, V., Parker, K., Solow, M. (). *Global human capital trends 2015: Leading in the new world of work*. New York, NY: Deloitte University Press.

Brown, J. T. (2017). The seven silos of accountability in higher education: Systematizing multiple logics and fields. Research and Practice in Assessment, 7: 41-58.

Cavanagh, D. (2019, February 22). *Academic work-out: Bridging silos in student successwork*. Retrieve from https://www.utsystem.edu/sites/academy-distinguished-teachers/blog/academic-work-out-bridging-silos-student-success-work-2019-02-22.

Chisholm, M. (2015, July 14). *Seven phases of a data life cycle*. Retrieved from https://www.bloomberg.com/professional/blog/7-phases-of-a-data-life-cycle/.

Commodore, F., Gasman, M., Conrad, C., Nguyen, T-H. (2018). Coming together: A case study of collaboration between student affairs and faculty at Norfolk State University. *Frontiers in Education*, 3(39). doi: 10.3389/feduc.2018.00039

Cook, C. (2017, March 31). *Documenting DH: Brianna Marshall*. Retrieved from https://researchdata.wisc.edu/author/ccook/page/4/.

Cunha, J. M., Miller, T. (2014). Measuring value-added in higher education: Possibilities and limitations in the use of administrative data. *Economics of Education Review*, 42: 64-77.

Klenowski, V., Askew, S., Carnell, E. (2006). Portfolios for learning, assessment and professional development in higher education. *Assessment and Evaluation in Higher Education*, 31(3), 267-286.

"data." *Wikipedia.org*. Retrieved February 27, 2020, from https://en.wikipedia.org/wiki/Data.

"Data vs. Information." *Diffen.com*. Retrieved February 26, 2020, from https://www.diffen.com/difference/Data_vs_Information.

Delaney, A. M. (2008). Typical institutional research studies on students: Perspective and examples. *New Directions for Higher Education*, 141: 57-67.

Facteau, J.D., Dobbins, G.H., Russell, J.E., Ladd, R.T., Kudisch, J.D. (1995). The influence of general perceptions of the training environment on pretraining motivation and perceived training transfer. *Journal of Management*, 21(1): 1–25.

Flaniken, F. (2009). Performance appraisal systems in higher education: An exploration of Christian institutions. *Electronic Theses and Dissertations*, 3857.

Florian, L., Hegarty, J. (2004). *ICT and special educational needs: A tool for inclusion*. Berkshire, England: Open University Press.

Fredricks, J. A., Blumenfeld, P. C., Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research*, 74, 59-109. doi:10.3102/00346543074001059

Freemana, S., Eddya, S. L., McDonougha, M., Smithb, M. K., Okoroafora, N., Jordta, H., Wenderoth, M. P. (2014). Active learning increases student performance in science, engineering, and mathematics. *Proceedings of the National Academy of Sciences of the United States of America (PNAS)*, 111(23): 8410-8415.

Friedman, H. H. (2018). *How the creation of too many academic departments stifles creativity, encourages a silo mentality, and increases administrative bloat* (Working Paper). Retrieved from https://www.researchgate.net/publication/322200199.

Frølich N., Stensaker B., Huisman J. (2017). understanding strategy practices in universities. In: Bleiklie I., Enders J., Lepori B. (Eds), *Managing universities*. Palgrave Studies in Global Higher Education. London: Palgrave Macmillan.

Grajek, S. (2019, January 28). *Top 10 IT issues, 2019: The Student Genome Project.* Retrieved from https://er.educause.edu/articles/2019/1/top-10-it-issues-2019-the-student-genome-project#data.

Hagan, K. (2017, August 22). *Declarative data versus behavioral data: Understanding the difference*. Retrieved from https://www.netquest.com/blog/en/declarative-data-versus-behavioral-data.

Harfield, T. (2017, June 13). *What is data democratization*. Retrieved from https://blog.blackboard.com/what-is-data-democratization/.

Hayhurst, C. (2019, June 20). *Breaking down data governance: Data quality*. Retrieved from https://edtechmagazine.com/higher/article/2019/06/breaking-down-data-governance-data-quality-perfcon.

Heck, R., Johnsrud, L., Rosser, V. (2000). Administrative Effectiveness in Higher Education: Improving Assessment Procedures. *Research in Higher Education*, 41(6): 663-684.

Holzweizz, P. C., Walker, D. W., Conrey, M. (2018). Preparing new professionals for administrative leadership in higher education: identifying specific skills for training, *Perspectives: Policy and Practice in Higher Education*, 23:2-3, 54-60. doi: 10.1080/13603108.2018.1543217

Huff, D. (1954). *How to Lie with Statistics*. New York, NY: W. W. Norton & Company.

Huron, American Council on Education (ACE), GeorgiaTech (GIT). (2019). *The transformation-ready higher education institution: How leaders can prepare for and promote change*. Chicago, IL: Author.

James Jacob, W., Xiong, W. & Ye, H. (2015). Professional development programmes at world-class universities. *Palgrave Communications,* 1, Article number: 15002. doi:10.1057/palcomms.2015.2

Jim, C. K., Chang H-C. (2018). The current state of data governance in higher education. *81st ASIS&T Annual Meeting Paper*. 55: 209-217.

Kim, J. (2018). *2019 Trends to watch: Higher education*. Retrieved from https://www.ellucian.com/assets/en/white-paper/2019-trends-watch-higher-education-ovum.pdf.

Knight, J. (2014, December 1). *Professional Development for Faculty and Staff in Ras Al Khaimah's Higher Education Institutions*. Retrieved from http://www.alqasimifoundation.com/en/publication/20/professional-development-for-faculty-and-staff-in-ras-al-khaimahs-higher-education-institutions.

Kubilus, N. J. (2016). Avoiding failure with higher education technology projects. *EDUCAUSE Review*, 51(4): 8-9.

Laskovsky J., O'Donnell J. (2018). Professional and support staff in higher education: Data and decisions. In F. F. Padró, C. Bossu, N. Brown (Eds.), *Professional and Support Staff in Higher Education*. University Development and Administration. Singapore: Springer.

Mameli, C., Passini, S. (2017). Measuring four-dimensional engagement in school: A validation of the student engagement scale and of the agentic engagement scale. *Testing, Psychometrics, Methodology in Applied Psychology*, 24(4): 527-541.

Markant, D. B., Ruggeri, A., Gureckis, T. M., Xu, F. (2016). Enhanced memory as a common effect of active learning. *Mind, Brain, and Education*, 10(3), 142–152.

McEvoy, D. M. (2018). *A guide to business statistics, First edition*. Hoboken, NJ: John Wiley & Sons, Inc.

McKenna, S. P. (2018, February 13). *Five misconceptions about data science – knowing what you don't know*. Retrieved from https://www.datasciencecentral.com/profiles/blogs/five-misconceptions-about-data-science.

Meerman, K. (2020, January 17). *How do you create a data culture in your company*. Retrieved from https://www.techzine.eu/blogs/data/44507/how-do-you-create-a-data-culture-in-your-company/.

Menekse, M., Stump, G. S., Krause, S., Chi, M. T. H. (2013). Differentiated overt learning activities for effective instruction in engineering classrooms. *Journal of Engineering Education*, 102(3), 346–374.

Michael, J. (2006). Where's the evidence that active learning works. *Advances in Physiology Education*, 30: 159-167. doi:10.1152/advan.00053.2006

Morrow, J. (2018). *Developing a data literate workforce: A strategy and framework for the enterprise*. Radnor, PA: QlikTech International AB.

Organization for Economic Co-operation and Development (OECD). (2017). Core skills for public sector innovation. In *Skills for a High Performing Civil Service*. Paris: Author.

Petrides, L. (2004, February 1). *The democratization of data in higher education: A case study of the challenges that institutions face as they seek to improve student success*. Retrieved from https://www.iskme.org/content/democratization-data-higher-education-0.

"Project Based Assessment." *Teach-nology.com*. Retrieved Feb 29, 2020 from https://www.teach-nology.com/currenttrends/alternative_assessment/projectbased.html.

Santos, G. D., Takaoka, H., de Souza, C. A. (2010). An empirical investigation of the relationship between information quality and individual impact in organizations. *AMCIS 2010 Proceedings*. Paper 192.

Sheng, Y., Mykytyn, P. (2002): Information technology investment and firm performance: A perspective of data quality. *Proceedings of the 7th ICIQ*, pp. 132–141.

Sternkopf, H., Mueller., R. M. (2018). Doing good with data: Development of a maturity model for data literacy in non-governmental organizations. In *Proceedings of the 51st Hawaii International Conference on System Sciences*. http://hdl.handle.net/10125/50519

Swing, R. L. (2016). *Institutional research capacity: Foundations of federal data quality*. Retrieved from http://www.ihep.org/postsecdata/resources/institutional-research-capacity-foundations-federal-data-quality.

Tozzi, C. (2017, December 11). *Five best practices for improving data quality*. Retrieved from https://blog.syncsort.com/2017/12/big-data/data-quality-best-practices/.

Whistle, W. (2017, November 1). *How higher education data reporting is both burdensome and inadequate*. Retrieved from https://www.thirdway.org/report/how-higher-education-data-reporting-is-both-burdensome-and-inadequate.

Wiggins, G., and McTighe, J. (1998). Backward Design. In *Understanding by Design* (pp. 13-34). Alexandria, VA: Association for Supervision and Curriculum Development (ASCD).

Wilsdon, J., Allen, L., Belfiore, E., Campbell, P., Curry, S., Hill, S., Jones, R., Kain, R., Kerridge, S., Thelwall, M., Tinkler, J., Viney, I., Wouters, P., Hill, J., Johnson, B. (2015). *The metric tide: Report of the independent review of the role of metrics in research assessment and management*. London, UK: Higher Education Funding Council for England (HEFCE). doi: 10.13140/RG.2.1.4929.1363

Wolff, A., Gooch, D., Montaner, J. J.C., Rashid, U., Kortuem, G. (2016). Creating an understanding of data literacy for a data-driven society. *The Journal of Community Informatics*, 12(3): 9-26.

Wong, Y. L., Siu, K. W. M. (2018). The development and evolution of design education from secondary school to tertiary education. In: Wang V. X. (Ed), *Handbook of Research on Positive Scholarship for Global K-20 Education*. Pennsylvania, PA: IGI Global.

Wu, J-H., Wang, Y-M. (2006). Measuring KMS success: a respecification of the DeLone and McLean's model. *Information and Management*, 43, 728-739.

Contact email: jane.hu@nyu.edu

"Sex Education: Level of Knowledge and Its Effects on Sexual Behavior and Opinions Among the Government Senior High School Students of Vigan City"

Michelle Gallao, University of Northern Philippines, Philippines
Pamela Daniel, University of Northern Philippines, Philippines
Dianne Shayne Faylogna, University of Northern Philippines, Philippines
Adelaida Galivo, University of Northern Philippines, Philippines
Nema Jovinni Guerrero, University of Northern Philippines, Philippines
Marife Amor Taqueban, University of Northern Philippines, Philippines

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract
The Philippines, being a Christian country, finds Sex Education a sensitive topic to discuss with. But, with the increasing cases of pregnancies, sexually-transmitted diseases and other forms of sexually-related violence, the Philippine government raised their vote to integrate and teach sex education in the curriculum. After recognizing the vital role of education on the rising incidences of early pregnancy, sexual violence and human immunodeficiency virus (HIV) infection among youth, a DepEd Order was passed to include sexuality education in order to mandate the provision of an age appropriate reproductive health education for adolescents. The main objective is to elicit the baseline information of students on Sex Education and to give a background on their current sexual knowledge, behaviors and opinions. This study used quantitative method specifically, non-experimental descriptive-correlational research design. A questionnaire that underwent validation and reliability testing was utilized as a form of instrumentation. Out of the 846 respondents, 19.15% already tried engaging in sexual intercourse, most of which having 1-2 sexual partners (10.99%), with the usual age of 16 years old (6.74%). Respondents prefer masturbation over vaginal, oral or anal sex and those who had sexual experience are embarrassed buying contraceptives. The extent of Cumulative Sexual Education information gained by the students is generally "low" and their Sexual Knowledge and Sexual Opinion are at "average" level. The extent of Sexual Behaviors of those who don't have sexual experience is "low" but "average" among those who already had experience. However, gender orientation shows significant difference in their sexual behavior.

Keywords: Sex Education, Sexual Behavior, Sexual Opinion, Sexual Knowledge

iafor
The International Academic Forum
www.iafor.org

Introduction

The Philippines, being a Christian country, finds Sex Education a sensitive topic for discussion. However, with the increasing cases of early pregnancies, sexually-transmitted diseases and varied forms of sexually-related violence, the Philippine government mandated the integration of sex education in the curriculum.

However, the Catholic Bishop's Conference of the Philippines (CBCP) disagrees strongly with this action saying that "sexuality courses will only expose the youth to a culture of contraception, leading them to become more promiscuous in handling relationships".[1]In addition, the CBCP committee believes that the task of educating the children about sex and relationships should be up to the parents, not the teachers.

Regardless of the church's opposition to include sex education in the curriculum, the Philippine passed the Responsible Parenthood and Reproductive Health Act of 2012 or informally known as Reproductive Health Law or RH Law. This law guarantees universal access to methods of contraception, fertility control, sexual education and maternal care.

Alongside the RH Law, the Department of Education, after recognizing the role of education on the rising incidences of early pregnancy, sexual violence and human immunodeficiency virus (HIV) infection among the youth, issued the DepEd Order No. 31, series of 2018 the Implementation of the Comprehensive Sexuality Education (CSE) —to include sexuality education in order to mandate the provision of an age appropriate reproductive health education for adolescents.[2]

Engaging with premarital sex with no idea of its repercussions may put teenagers at risk with unwanted pregnancies and sexually transmitted diseases. According to the Philippine Statistics Authority, the number of registered live births in Region 1 (Ilocos Region) during the fourth quarter of 2017 summed up to 25,967, which is 8.6% higher than the same period in 2016 with a daily birth occurrence of 12 babies per hour. The month of November was observed to have the highest number of registered live births at 34.9%. San Carlos City, Pangasinan ranked first among the top ten cities/municipalities in Region 1 that registered the highest number of live births with 3,074. On the other hand, municipalities of Sigay and Banayoyo, Ilocos Sur and Dumalneg, Ilocos Norte, had the lowest number of registered live births.

Furthermore, the number of HIV inflicted people rose as well from 22 HIV cases per day in 2015 to 32 HIV cases per day as of February 2018. There are 40,663 cases from January 2013 to February 2018 in which 38,869 cases are male and 21,215 cases are from ages 25 to 34, followed by 11,847 cases from 15 to 24 years old.[3]

The province of Ilocos Sur is also alarmed by the increasing number of reported HIV/AIDS cases in the recent years. In 2016 alone, there were twenty-four (24) new cases, 22 of which are men while 2 are women, and the most common mode of transmission is the male-to-male sex.[4]

Since the discussion of sex and sexuality is considered taboo to some, many adolescents are left vulnerable. Such vulnerability results to unguided sexual activities which increases the exposure to sexually transmitted infections; and for girls, the additional risk of untimely pregnancies.

Thus, before the full implementation of the Comprehensive Sexuality Education in the Philippine curriculum, this study will seek to give background on the knowledge of sexual education and how it affects the behaviors and opinions of the said-to-be most vulnerable population —the adolescents.

Statement of the Problem

The main objective of the study is to elicit baseline information of senior high school students on Sex Education and to provide a background of the current sexual knowledge, behaviors and opinions before the full implementation of the Comprehensive Sexuality Education in the Philippine curriculum.

Research Design

This study used the quantitative method of research. More specifically, the researchers used the non-experimental descriptive-correlational research design to explain, describe and establish relationships about sexual knowledge, behavior and opinions among the public senior high school students of Vigan City.

Population and Sampling Technique

The study was conducted among the public senior high school students of Vigan City with 846 respondents who voluntarily participated using quota sampling.

The study did not strictly require an equal number of participants according to their age, gender orientation, relationship status and place of residency. However, respondents should be officially enrolled as senior high school (grade 11 or grade 12) of academic year 2018-2019 at Ilocos Sur National High School, Vigan National High School - East and Vigan National High School - West. Students who were absent and those who were not willing to participate were not forced.

Instrumentation

The researchers utilized questionnaires to gather the data in order to answer the problems set forth in the study. Part of the questionnaire was an explanatory letter stating the purpose of the study and a written informed consent that was distributed to the respondents. The respondents were reminded that their participation in the study is voluntary. The researchers dealt with the information gathered professionally and confidentially. The respondents were asked to answer the questionnaires completely according to which best applies to them.

The questionnaire went through content validity and reliability testing prior to data collection. The questionnaire is composed of five (5) parts which includes:

a. General Questions and Demographics which includes the respondent's age, gender orientation, relationship status and place of residency. Number of sexual partners and age of first sexual intercourse were also included.

b. Cumulative Sex Education which includes how much information the respondents had acquired about basic forms of contraception, its advantages and disadvantages, and some sexual related issues and beliefs.
c. Sexual Knowledge which evaluated the knowledge of the respondents about sex and related topics
d. Sexual Behaviors
e. Sexual Opinions

The response to the questions were given corresponding values from which the respondents choose which best applies to them.

Results and Discussions

Discussions of results are presented according to the statement of the problems.

1. Demographic Profile of the Senior High School Students of Vigan City

There are 846 respondents of this study coming from the three different public senior high schools in Vigan City, namely, Ilocos Sur National High School, Vigan National High School-East, and Vigan National High School-West.

Table 1a. ***Age Profile of the Respondents***

Age	*f*	%
15	2	0.2
16	177	20.9
17	374	44.2
18	257	30.4
19	32	3.8
20	4	0.5
Total	**846**	**100.0**

As shown in Table 1a, the respondents are grouped according to their actual age. Most of the students are age 17 and 18 at 374 (44.21%) and 257 (30.38%) respectively. The youngest are 15 years old with 2 respondents (0.24%), while the oldest are age 20 years old with 4 respondents (0.47%).

Table 1b. ***Gender Orientation Profile of the Respondents***

Gender Orientation	*f*	%
Male (Straight Male)	286	33.81
Female (Straight Female)	480	56.74
Bisexual Male	13	1.54
Bisexual Female	29	3.43
Gay	35	4.14
Lesbian	3	0.35
Total	**846**	**100.0**

The distribution of the gender orientation of the respondents is shown in Table 1b. Straight females are the most numbered at 480 (56.74%), followed by straight males with 286 (33.81%).

Bisexual male and female are 13 (1.54%) and 29 (3.43%) respectively. There are 35 respondents who claim to belong to the gay population with 4.14%, and the least number are the lesbians with 3 (0.35%) of the respondents.

Table 1c. ***Relationship Status of the Respondents***

Relationship Status	***f***	**%**
Single	712	84.16
In a Relationship (Unmarried)	134	15.84
Total	**846**	**100.0**

Table 1c presents the respondent's profile in terms of Relationship Status. Seven hundred twelve (712) of the respondents are single representing the majority of the population at 84%. The remaining 16% are all in a relationship, but still unmarried.

Table 1d. ***Place of Residency of the Respondents***

Place of Residency	***f***	**%**
Staying with Parents/Guardian	831	98.23
Dormitory/Apartment	15	1.77
Total	**846**	**100.0**

Place of Residency is presented in Table 1d. Most of the respondents are staying with their parents or guardians (98.23%), while the remaining 1.77% are staying in the dormitories or apartments.

2. Usual age of first sexual intercourse among the public Senior High School Students of Vigan City

Table 2a. ***Number of Senior High School Students who Tried Engaging in Sexual Intercourse by Gender Orientation - Vigan City, Ilocos Sur. February 2019 (n=846)***

Gender Orientation	**n**	**YES**	**%**
Male (Straight Male)	286	109	38.11
Female (Straight Female)	480	33	6.88
Bisexual Male	13	3	23.08
Bisexual Female	29	4	13.79
Gay	35	11	31.43
Lesbian	3	2	66.67
Grand Total	**846**	**162**	**19.15**

Table 2a presents the number of senior high school students who tried engaging in sexual intercourse by gender orientation. Result shows that majority of the respondents do not engage in sexual intercourse. Result also presents that out of 846 respondents, there are 162 (19.15%) senior high school students who already engaged in sexual intercourse. Lesbian respondents have the highest percentage at 66.67%, followed by straight male with 38.11% and gays at 31.43%. Straight female has the lowest percentage at 6.88%.

Table 2b. ***Usual Age of First Sexual Experience among Senior High School Students - Vigan City, Ilocos Sur. February 2019 (n=846)***

Age of First Sexual Experience	*f*	%
7	1	0.12
8	1	0.12
9	1	0.12
10	1	0.12
12	2	0.24
13	4	0.47
14	14	1.65
15	45	5.32
16	57	6.74
17	31	3.66
18	4	0.47
19	1	0.12
No Sexual Experiences	684	80.85
Total	**846**	**100.0**

The table presents the usual age of first sexual experience among senior high school students. The result shows that most of the respondents started having sexual experience at the age of 16 with the highest frequency of 57 (6.74%) among the 846 students. This has been followed by the ages 15 and 17 with a frequency of 45 (5.32%) and 31 (3.66%), respectively. There are also 14 students (1.65%) who admitted that they had first experienced it at the age of 14 while 4 (0.47%) at ages 12 and 18 and ages 8, 9, 10 and 19 have the least frequency of 1 (0.12%).

Most significantly, this table reveals that majority of the students (684 out of 846) with a mean percentage of 80.85 have no sexual experiences during their Senior High School.

Table 2c. ***Total Number of Sexual Partners among the Senior High School Students - Vigan City, Ilocos Sur. February 2019 (n=846)***

Number of Sexual Partners	*f*	%
None	684	80.85
1-2	93	10.99
3-5	45	5.32
More than 5	24	2.84
Total	**846**	**100.0**

Table 2c shows the total number of sexual partners of the senior high school Students. This presents that majority of the senior high school students have no sexual partners with a frequency of 684 out of 846 and a mean percentage of 80.85.

Moreover, there are 93 (10%) respondents who had 1-2 sexual partners followed by 45 (5.32%) who had 3-5 and lastly 24 (2.84%) who had more than 5 sexual partners.

3. <u>What is the extent of the Cumulative Sexual Education information gained by the public senior high schools students of Vigan City?</u>

Table 3a. ***Cumulative Sexual Education Information gained by the Respondents - Vigan City, Ilocos Sur. February 2019 (n=846)***

Item	Mean	DR
Forms of Contraception		
A. Condoms	2.28	L
B. Pills	1.97	L
C. IUDs (Intrauterine Devices)	1.23	VL
D. Rhythm Method/Withdrawal	1.33	VL
E. Depo Provera (Injectable)	1.35	VL
F. Advantages of the various contraceptive methods	1.65	VL
G. Disadvantages of the various contraceptive methods	1.61	VL
Overall	**1.62**	**Very Low**

Norm:

Range	Item DR	Overall DR
3.26 – 4.00	a lot	High (H)
2.51 – 3.25	some	Average (A)
1.76 – 2.50	a little	Low (L)
1.00 – 1.75	none	Very Low (VL)

This table shows the cumulative sexual education information gained by the selected public senior high school students of Vigan City regarding the different forms of contraception gauged through the questionnaires distributed to them. Result shows in general that the said students have a *"very low"* knowledge about different forms of contraception with an overall percentage of 1.62.

Majority of the respondents have heard and gained a little information either in school, through internet or friends about condoms as a form of contraception with the mean score of 2.28. Similarly, the selected senior high school students have a little knowledge about pills as a form of contraception with a mean percentage of 1.97.

Also, the selected senior high school students have no knowledge regarding the different advantages of the various contraception methods (x=1.65) and the disadvantages of the various contraceptive methods (x=1.61). Most of them also have not heard and have no knowledge about Depo Provera or injectable (x=1.35), rhythm method/withdrawal (x=1.33) and IUDs/intrauterine devices (x=1.23) as a form of contraception.

Table 3b. ***Cumulative Sexual Education Information gained by the Respondents - Vigan City, Ilocos Sur. February 2019 (n=846)***

Item	Mean	DR
General Information		
A. Parts and functions of reproductive system	2.62	A
B. Process of Contraception and Fertility	2.21	L
C. Consequences of Unprotected Sexual Intercourse such as Early Pregnancy, Sexually Transmitted Infections, etc.	2.39	L
D. Alternatives to Sexual Intercourse	1.88	L
E. HIV/AIDS	2.46	L

F. Other Sexually Transmitted Diseases	2.05	L
G. Different Sexual Orientations and Choices	1.87	L
H. Gender (such as transgender issues)	2.29	L
I. Waiting until marriage to have sex	2.69	A
J. Taking an Abstinence Pledge	1.71	VL
Overall	**2.21**	**Low**
As a whole	**1.90**	**Low**

Norm:

Range	Item DR	Overall DR
3.26 – 4.00	a lot	High (H)
2.51 – 3.25	some	Average (A)
1.76 – 2.50	a little	Low (L)
1.00 – 1.75	none	Very Low (VL)

The above table shows the cumulative sexual education information of the selected public senior high school students of Vigan City regarding the general information related to the reproductive system, sexual practices and knowledge. The students from the different public senior high schools of Vigan City have a low (x=2.21) general information regarding sexual education. Most of the students (x=2.69) wait until marriage to have sex. Most have also acquired some (x=2.62) knowledge regarding the different parts and functions of the reproductive system. Most of them have little (x=2.46) knowledge or have heard about human immunodeficiency virus or the acquired immunodeficiency syndrome. With regard to the different consequences of unprotected sexual intercourse such as early pregnancy, sexually transmitted infections, etc., the respondents have little (x=2.39) knowledge regarding those consequences. In addition, it is shown that they have little knowledge regarding gender issues (x=2.29), the process of contraception and fertility (x=2.21), other sexually transmitted diseases (x=2.05), alternatives to sexual intercourse (1.88) and different sexual orientations and choices (x=1.87). In addition, most of the senior high school respondents have no knowledge regarding taking an abstinence pledge (x=1.71).

4. Level of Sexual of Knowledge of the Public Senior High School Students of Vigan City

Table 4. ***Level of Sexual Knowledge of the Respondents - Vigan City, Ilocos Sur. February 2019 (n=846)***

Items	*f*	%
1. Which of the following vaginal discharges is considered NORMAL?	492	58.20
2. How can you get pregnant?	718	84.90
3. HIV/AIDS is curable.	548	64.80
4. Which of the following contraceptives is considered most effective?	134	15.80
5. Which of the following contraceptives protects you from sexually transmitted infections?	583	68.90
6. When does Oral Contraceptive Pills become effective, if started on the first day of menstration?	142	16.80

7. You can get HIV/AIDS in _____.	318	37.60
8. Who is allowed to take contraceptives?	252	29.80
9. Angela claimed that it was her first sexual intercourse, however, you noticed as her partner that she didn't bleed. Thus, you concluded that Angela is _____.	347	41.00
10. Which of the following is considered best and absolute way to avoid sexually transmitted diseases?	128	15.10
Mean Percentage		**43.29**
DR		**Average**

Norm:

Range	**DR**
81 – 100	Very High (VH)
61 – 80	High (H)
41 – 60	Average (A)
21 – 40	Low (L)
1 – 20	Very Low (VL)

The Table 4 shows the level of sexual of knowledge of the public senior high schools students of Vigan City base on questions regarding reproductive health. In general, result shows that majority of the selected senior high school students have an average knowledge as shown by the mean percentage of 43.29%.

Majority (718 or 84.90%) of the selected senior high school students are very highly knowledgeable that pregnancy results from sexual intercourse only. As regards, 68.90% (583) of the respondents know that the use of condoms can protect them from acquiring STI (Sexually Transmitted Infections); and 64.80% (548) of the respondents recognize very well that HIV/AIDS is not curable. Moreover, the selected senior high school students have an average knowledge about normal vaginal discharge and the relationship of bleeding during first intercourse and virginity with a mean percentage of 58.20% (492) and 41.00% (347) respectively.

On the contrary, senior high school students have a very low knowledge about ligation and/or vasectomy (15.80%) as the most effective contraceptive method. Most of them do not know also that abstinence is still the absolute way to avoid STDs (Sexually Transmitted Disease).

Because of the diversified culture around the world, knowledge on sexual and reproductive health is affected and portrays at different levels from low to average up to high knowledge.

5. The extent of Sexual Behaviors of the public senior high school students of Vigan City

Table 5a. ***Extent of Sexual Behaviors among the Senior High School Students - Vigan City, Ilcos Sur. February 2019 (n=846)***

Item	Mean	DR
1. I practice vaginal sex.	2.32	L
2. I practice oral sex.	2.28	L
3. I practice anal sex.	2.16	L
4. I enjoy masturbating.	2.52	A
5. Talking to my parents about sexual topics is uncomfortable.	2.95	A
6. Discussing sex and related sexual topics with other people is embarrassing.	3.06	A
Overall	**2.45**	**Low**

Norm:

Range	Item DR	Overall DR
3.26 – 4.00	Always (A)	High (H)
2.51 – 3.25	Often (O)	Average (A)
1.76 – 2.50	Sometimes (S)	Low (L)
1.00 – 1.75	Never (N)	Very Low (VL)

Table 5a presents the extent of sexual behaviors among senior high school students that includes their practices of having vaginal sex, oral sex, anal sex, masturbation, their comfort in talking with their parents about sexual topics, and if discussing sex and related sexual topics with other people is embarrassing for them. Results show that students prefer masturbation (x=2.52) over vaginal (x=2.32), oral (x=2.28) or anal (x=2.16) sex. Their comfort in talking with their parents about sexual topics has a mean score of 2.95 while discussing sex related topics with other people has a mean score of 3. 06.

Table 5b. ***Extent of Sexual Behaviors among the Senior High School Students who have Sexual Experience - Vigan City, Ilocos Sur. February 2019 (n=846)***

Item	Mean	DR
1. I refuse to use any contraceptives such as condom or pills during sexual intercourse.	3.23	A
2. I feel embarrassed buying contraceptives such as condom or pills.	3.8	H
3. I find myself having contact with another person even if I don't want to.	2.91	A
4. I have sexual experience with another person when I am pressured to do it.	2.98	A
5. I have sexual experience with another person while under the influence of alcohol or drugs.	3.03	A
6. I have sexual contact with another person even if s/he said no.	2.79	A
Overall	**3.12**	**Average**

Norm:

Range	Item DR	Overall DR
3.26 – 4.00	Always (A)	High (H)
2.51 – 3.25	Often (O)	Average (A)
1.76 – 2.50	Sometimes (S)	Low (L)
1.00 – 1.75	Never (N)	Very Low (VL)

Table 5b presents the extent of sexual behaviors among the senior high school students who already had sexual experience. It shows that most of the students are embarrassed in buying contraceptives such as condom or pills before sexual intercourse with a mean score of 3.8. It is also revealed that some students refused to use any contraceptives such as condom or pills with a mean score of 3.23. Some students had sexual experience with another person while under the influence of alcohol or drugs and even had sex with another person when pressured to do it with mean score of 3.03 and 2.98, consecutively. Other students experienced having contact with another person even if they don't want to and have sexual contact with another person even if they said no with a mean score of 2.91 and 2.79, respectively.

6. The extent of Sexual Opinions of the Senior High School Students of Vigan City

Table 6. ***Extent of Sexual Opinions among the Senior High School Students - Vigan City, Ilocos Sur. February 2019 (n=846)***

Item	Mean	DR
1. I think it would be entertaining and sexually arousing to look at pornographic (sexually explicit books, movies)	2.84	A
2. Swimming in the nude with a member of the opposite sex would be an exciting experience.	3.14	A
3. Engaging in group sex is an entertaining idea.	3.36	H
4. I personally find that thinking about engaging in sexual intercourse is arousing.	2.88	A
5. It is embarrassing to buy contraceptives such as condom or pills.	2.41	L
6. It would be exciting for me to see someone exposing themselves in public.	3.29	H
7. The idea of engaging in unusual sexual practices (such as anal sex, threesome/group sex, use of sex toys) is highly arousing.	3.19	A
8. The idea of having long term sexual relationship with someone who had more than one sex partner in the past (such as marrying someone who had past sexual relationships) is disgusting to me.	3.06	A
9. Getting tested for sexually transmitted infections is not important.	3.23	A
10. Learning sex and other sexual topics is not beneficial.	3.07	A
Overall	**3.07**	**Average**

Norm:

Range	Item DR	Overall DR
3.26 – 4.00	Strongly Agree (SA)	High (H)
2.51 – 3.25	Agree (A)	Average (A)
1.76 – 2.50	Disagree (D)	Low (L)
1.00 – 1.75	Strongly Disagree (SD)	Very Low (VL)

Participants were asked to complete the Sexual Opinion Questions to assess how comfortable they felt with sexual topics (e.g., viewing sexually explicit material, attitude toward engaging in sexual practices, and attitude toward learning about sexual topics). For each of the 10 items, participants rated their opinions on a 4-point scale. They were asked to indicate whether they strongly agree (SA=1), agree (A=2), disagree (D=3) or strongly disagree (SD=4) with certain statements as shown in Table 6. Response means were used to create a sexual opinion index which in Table 6 shows an overall mean score of 3.07.

In the table, a mean score range of 3.26 – 4.00 indicates a high overall DR in which the respondents strongly agree on a statement. A mean score of 3.36 of the respondents strongly agreed on the statement that engaging in group sex is an entertaining idea. Also, with a high overall DR, students strongly agreed that it would be exciting to see someone exposing themselves in public (3.29).
Most of the statements on Table 6 has a mean score that ranges between 2.51-3.25 which indicates an average overall DR. A mean score of 2.84 of the respondents agreed that it would be entertaining and sexually arousing to look at pornographic pictures (sexually explicit books, movies, etc.). Also, with an average rate, some of them agreed that swimming in the nude with a member of the opposite sex would be an exciting experience (x=3.14).

Moreover, those who personally find that thinking about engaging in sexual intercourse is arousing has a mean score of 2.88 and the idea of engaging in unusual sexual practices (such as anal sex, threesome/group sex, use of sex toys) is highly arousing (x=3.19) while (x=3.06) find it disgusting to have a long term sexual relationship with someone who had more than one sex partner in the past (such as marrying someone who had past sexual relationships).

It is also shown in the table that 3.23 of the respondents agreed that getting tested for sexually transmitted infections is not important. Also, agreeable to them is the statement that learning sex and other sexual topics is not beneficial (3.07).

7. Relationship between Sexual Knowledge and the following: Sex Education, Sexual Behaviors and Sexual Opinions

Table 7. ***Correlation Coefficients Showing the relationship between Sexual Knowledge and the different Sexual Indicators - Vigan City, Ilocos Sur. February 2019 (n=846)***

Indicators	r-value	Significance	Decision
Sex Education	0.341^{**}	$p < 0.05$	**Reject Ho**
Sexual Opinions	0.106^{**}	$p < 0.05$	**Reject Ho**
Sexual Behaviors	0.003	$p > 0.05$	Do Not Reject Ho
Sexual Experience	-0.009	$p > 0.05$	Do Not Reject Ho

Table 7 presents the summary of the correlational of Sexual Knowledge and the different indicators namely, Sex Education, Sexual Opinions, Sexual Behaviors and Sexual Experience. Hypothesis of the problem states that there is no significant relationship between sexual knowledge and the different indicators.

The table shows that there is no significant relationship between Sexual Knowledge and Sexual Behavior ($p>0.05$). There is also no significant relationship between Sexual Knowledge and Sexual Experience. Thus, the level of knowledge does not affect the sexual behaviors of the respondents and whether they already had sexual experience or not.

However, the table shows that there is significant relationship between sexual knowledge and sex education and between sexual knowledge and sexual opinion.

8. Difference on Sexual Behaviors among the Selected Public Senior High School Students considering the Age, Gender Orientation, Relationship Status and Place of Residency

Table 8. ***Results of the Multiple Regression Analysis of the Personal Profile of the Respondents and their Sexual Behaviors - Vigan City, Ilocos Sur. February 2019 (n=846)***

Variables	Beta	t-value	t-prob	Interpretation
Personal Factors				
Age	0.000	-0.007	p>.05	Not Significant
Gender Orientation	0.064	2.301	p<.05	**Significant**
Relationship Status	-0.040	-1.425	p>.05	Not Significant
Place of Residency	0.022	0.795	p>.05	Not Significant

Mult. R: .600 F-ratio: 78.300
R^2: .036 F-prob: .008

Table 8 presents the difference between Sexual Behaviors and the different personal profile of the respondents such as age, gender orientation, relationship status and place of residency. The results show that there is no significant difference in the sexual behaviors of the senior high school students if age ($p>.05$), relationship status ($p>.05$) and place of residency ($p>0.05$) are considered. However, the gender orientation of the said respondents shows significant difference in their sexual behaviors.

Conclusion

Based on the findings of the study, the researchers found that from the 846 respondents, 19.15% already tried engaging in sexual intercourse, most of which having 1-2 sexual partners with the usual age of 16 years old at first sexual intercourse that put the students into high risk of teenage pregnancy.

The extent of Cumulative Sexual Education information gained by the selected public senior high school students of Vigan City is generally *"low"*. Thus, there is really a need for the integration of sexual education in the curriculum.

The extent of Sexual Knowledge of the selected public senior high school students of Vigan City is at *"average"* level. Therefore, sexual knowledge of senior high school students still needs improvement especially about permanent contraceptive method and STDs.

The extent of Sexual Behaviors of the selected government senior high school students who do not have sexual experience is *"low"*. However, it is "average" among those who already have sexual experience. Therefore, sexual experience affects the sexual behaviour of the students. It is therefore concluded that sexual behaviour of respondents is not about what they know but it is about what they had experienced.

The extent of Sexual Opinions among the respondents is at an "average" level. The respondents strongly agree that engaging in group sex is entertaining and seeing someone exposing themselves in public is exciting. This implies that adolescents nowadays have more aggressive and liberated thinking.

The research also shows that there is no significant relationship between Sexual Knowledge and Sexual Behavior. There is also no significant relationship between Sexual Knowledge and those with Sexual Experience. Thus, the level of knowledge does not affect the sexual behaviors of the respondents, whether they already had sexual experience or not. However, the cumulative sexual education information gained by the respondents affects their sexual knowledge. The sexual knowledge also affects the sexual opinions expressed by the respondents.

The results shows that there is no significant difference in the sexual behaviors of the senior high school students if age, relationship status and place of residency are considered except gender orientation which shows significant difference in their sexual behaviors.

Acknowledgement

We acknowledge the Almighty Father, the vital source of strength, knowledge and guidance for the accomplishment of this study.
Our utmost gratitude to the following people;
Dr. Sheryl Q. Racelis, for her consideration, patience and motivation, for sharing her expertise and invaluable supervision;
Dr. Glenda P. Rabino, our adviser, for her encouragement and unceasing support and guidance;
Dr. Czarina Artienda, Dr. Arlyn Batulan, and Dr. Annalyn Urbano, the members of the defense panel, for their intellectual criticism, recommendations and suggestions;
Ms. Anita R. Presto, Ms. Grace F. Castaneda, and Mr. Romulo Q. Quitevis, the principals of the senior high schools, for their unselfish assistance;
Dr. Aurelia T. Vitamog, UNP- Laboratory Science High School principal, for giving us permission to conduct our pilot study;
Dr. Ma. Teresa Susan L. Manzano, Assistant Dean, College of Teacher Education, for her substantial critique;
To our respondents, cooperation during the conduct of the study.

References

[1]Catholic Bishops Conference of the Philippines (2013). "Sex Ed will lead youth to culture of contraception, promiscuity - life advocate". Retrieved from www.cbcpnews.com/cbcpnews/?p=26475

[2]Department of Education (2018). *Policy Guidelines on the Implementation of the Comprehensive Sexuality Education*. www.deped.gov.ph

[3]HIV/AIDS and ART Registry of the Philippines (2018). National HIV/AIDS and STI Surveillance and Strategic Information Unit, Department of Health: Sta. Cruz, Manila

[4]Realgo, B. (2017). Ilocos Sur alarmed by rise in HIV/AIDS cases. ABS-CBN News. Retrieved from https://news.abs-cbn.com/news/05/18/17

[5]European Expert Group on Sexuality Education (2016) Sexuality education –what is it?, Sex Education, 16:4, 427-431

[6]Ajuwon , Ademola J. et al (2006). Sexual behavior and experience of sexual coercion among secondary school students in three states in North Eastern Nigeria. *BMC Public Health, 6(310), 1-10.*

[7]B.L. Ajibade et al (2013). Knowledge and Opinion toward Sex Education among Selected Secondary School in Ejigbo Local Government Area, Osun State, Nigeria. *IOSR Journal of Nursing and Health Science (IOSR-JNHS) e-ISSN: 2320-1959 p-ISSN: 2320-1940 Volume 2, Issue 1, pp 05-08*

[8]Yu, Juping (2012). Teenage sexual attitudes and benaviour in China: a literature review. *HealthandSocialCareintheCommunity20(6),561–582*

[9]Malek A. et al (2012). Sexual Knowledge among High School Students in Northwestern Iran. *International Scholarly Research Network 2012(ID 645103), 1-5.*

[10]P. Wang et al. (2014). Survey of attitude and knowledge of reproductive health among middle school students in Luoyang, China. *Genetics and Molecular Research 13 (3): 6168-6176*

[11]Henok, A. et al (2015). Knowledge, Attitude and Practice of Risky Sexual Behavior and Condom Utilization among Regular Students of Mizan-Tepi University, South West Ethiopia. *Journal of Child Adolescent and Behavior, 3(5), 1-6.*

[12]Jaffer, Y. A. et al (2006). Knowledge, attitudes and practices of secondary-school pupils in Oman: II. Reproductive health.*Eastern Mediterranean Health Journal, 12(1), 52-57.*

[13]Grunseit kissex. Effects of Sex Education on young people's sexual behavior

[14]Population Council. 2016. "Sexual and reproductive health knowledge, attitudes, and practices among early adolescents and young adults in Uganda: Findings from a

Link Up exploratory study," *Link Up Study Brief*. Washington, DC: Population Council.

[15]Nurdin, Y. et al (2017). The sexual Behavior's Related Factors of Senior High School in Teenagers in Bukittinggi 2017, *Indian Journal of Community Health,* Vol. 29, Issue No. 04

[16]Francesco Drago et al. (2016). Survey of Current Knowledge on Sexually Transmitted Diseases and Sexual Behaviour in Italian Adolescents. *Int. J. Environ. Res. Public Health, 13(422), 1-10.*

[17]Bansal RD., et al. Adolescence. Girls, an emerging priority. *Indian J Public Health*

[18]Randhir, Kumar et al (2017). Knowledge Attitude and Perception of Sex Education among School Going Adolescents in Ambala District, Haryana, India: A Cross-Sectional Study. *Journal of Clinical and Diagnostic Research Vol-11(3)*

[19]Alquaiz, AlJoharah et al (2012) Knowledge, Attitudes and Resources of Sex Education among Female Adolescents in Public and Private Schools in Central Saudi Arabia. *Saudi Med J; Vol.33(9)*

[20]De Irala, J. et al (2009). Relationships, love and sexuality: what the Filipino teens think and feel *BMC Public Health*, 9(2820, 1-13.

[21]De Jose, Elmer (2013). Filipino Adolescents' Sexual Attitudes and Behaviors: Results from a University Cohort. *Academic Journal of Interdisciplinary Studies MCSER Publishing, Rome-Italy 2(8). 1-12.*

[22]Stangr, C. and Walinga, J. (2014). Introduction to Psychology - First Canadian Edition. Victoria, B.C.:BCampus. https://opentextbc.ca/introductiontopyschology/.

[23]AHIP POGS Region 1 – project (n.d.). Retrieved December 5, 2018, from https://pogsinc.org

[24]Department of Health Commission on Population Region 1. Press Release: Teenage Pregnancy in Region 1 Escalates. (n.d.). Retrieved December 5, 2018, from http://rpo1.popcom.gov.ph/index.php/9-ahyd/80-press-release-teenage-pregnancy-in-region-1-escalates

[25]Kann, L. (2016). Youth risk behavior surveillance - United States, 2015. MMWR Surveil Summ, 64(4) retrieved from Https://www.cdc.gov/healthyyouth/data/yrbs/pdf/2015/ss6506_updated.pdf

[26]Habte, et. Al (2018). "Prevalence of Premarital Sexual Practices and its associated factors among high school students in Ethiopia, 2017." Journal of Public Health and Epidemiology vol 10 (10), pp. 356-362

[27]Demographic Research and Development Foundation (DRDF) and University of the Philippines Population (UPPI), 2014. 2013 YAFS4 Key Findings. Quezon City: DRDF and UPPI

[28]BL. Ajibade et al (2013). Knowledge and Opinion toward Sex Education among Selected Secondary School in Ejigbo Local Government Area, Osun State, Nigeria. IOSR Journal of Nursing and Health Science (IOSR-JNHS) e-ISSN: 2320-1959 p-ISSN: 2320-1940 Volume 2, Issue 1, pp 05-08

[29]Population Council. 2016. "Sexual and reproductive health knowledge, attitudes, and practices among early adolescents and young adults in Uganda: Findings from a Link Up exploratory study," Link Up Study Brief. Washington, DC: Population Council

[30]Tchokossa M. A., Adeyemi B. A.2018 "Knowledge and Use of Contraceptives among Female Adolescents in Selected Senior Secondary Schools in Ife Central Local Government of Osun State International Journal of Caring Sciences" Volume 11 | Issue 3| Page1647

[31]International Perspectives on Sexual and Reproductive Health "Low Levels of Sexual and Reproductive Health Knowledge Found Among Students in Sri Lanka", March 2015, Volume 41,Issue 1, pp 54-55

[32]Bernard,E.J(2006) "Lack of Sexual Health Knowledge Amongst Teenage Black and Minority Ethnic Londoners 'Cause for Concern'. Gray's Inn Road, London, WC1X 8DP, NAM Publication

[33]Chaohua Lou M.D. et al (2012-03-01). Media's Contribution to Sexual Knowledge, Attitudes, and Behaviors for Adolescents and Young Adults in Three Asian Cities. Society for Adolescent Health and Medicine. Volume 50, Issue 3, Pages S26-S36.

[34]Rengifo-Reina HA[1], Córdoba-Espinal A, Serrano-Rodriguez M. (August 1, 2012). Adolescents' sexual and reproductive health knowledge and practice in a provincial Colombian town. Society for Adolescent Health and Medicine.
Volume 14, Issue 4; Pages 558-69

[35]Robbins, C., et al, "Prevalence, Frequency, and Associations of Masturbation With Partnered Sexual Behaviors Among Us Adolescents, Indianapolis, 2011.

[36]O-Prasertsawat, P. and Petchum, S. "Sexual Behavior of Secondary School Students in Bangkok Metropolis", 2004, J. Med Assoc. Thai Vol. 87, No. 7, pp. 757.

[37]Halpern-Felsher, Bonnie L., et al, "Oral versus Vaginal Sex Among Adolescents: Perceptions, Attitudes and Behavior", Illinois, April 2005.

[38]Lindberg, L., et al, "Noncoital Sexual Activities Among Adolescents", Journal of Adolescent Health, Vol. 43, Issue 43, Issue 3, September 2008, pp. 231-238.

[39]Cherie, A., and Berhane, Y., "Oral and Anal Sex Practices Among High School Youth in Addis Ababa, Ethiopa, BMC Public Health, 2012.

[40]Ogle, S., et al, "Communication Between Parents and Their Children About Sexual Health", Contraception Vol. 77, Issue 4, April 2008, pp. 283-288.

[41]Pötsönen, R., and Kontula, O., "How are Attitudes Towards Condoms Related To Gender And Sexual Experiences among Adolescents in Finland?", Health Promotion International, Vol. 14, Issue 3, September 2004, pp 211-220.

[42]Flack, W., et al., "Risk Factors and Consequences of Unwanted Sex Among University Students: Hooking Up, Alcohol, and Stress Response", Journal of Interpersonal Violence, Vol. 22, Issue 2, 2007.

[43]Cooper, Lynne, "Alcohol Use and Risky Sexual Behavior Among College Students and Youth: Evaluating the Evidence", Journal of Studies in Alcohol, Supplement (s14), 2015.

[44]Amit S Mutha, Sonali A Mutha, Paritosh J Baghel, Ramanand J Patil, Sagar B Bhagat, Sadiq B Patel, and Mahinder C Watsa A Knowledge, Attitudes and Practices Survey regarding Sex, Contraception and Sexually Transmitted Diseases among Commerce College Students in Mumbai

[45]Jessica L.MorrisHamidRushwan, Adolescent sexual and reproductive health: The global challenges. International Journal of Gynecology & Obstetrics. Volume 131, Supplement 1, October 2015, Pages S40-S42

[46]Idele, P., Gillespie, A., Porth, T., Suzuki, C., Mahy, M., Kasedde, S. et al. Epidemiology of HIV and AIDS among adolescents: current status, inequities, and data gaps. *J Acquir Immune Defic Syndr*. **66** (Suppl. 2): 2014; S144– S153

[47]Leach-Lemens, C. *Adolescent deaths from AIDS rising, especially among boys*. 2014; NAM Publications: London http://www.aidsmap.com/Adolescent-deaths-from-AIDS-rising-especially-among-boys/page/2893246/. Accessed November 7, 2014 Google Scholar

[48]Breyer, et Al. (2010). "The Impact of Sexual Orientation on Sexuality and Sexual Practices in North American Medical Students". The Journal of Sexual Medicine. 7 (7): 2391-2400

[49]Ching, et Al (2016). "Same-Sex Behavior and Health Indicators of Sexually Experienced Filipino Young Adults". Archieved of Sexual Behaviors 45 (6): 1472-1482

Contact email: shynea1027@gmail.com

The Effects of Active Learning Process in Product and Developing of Mathematics Internship Students of Educational Faculty Udon-Thani Rajabhat University

Somchai Vallakitkasemsakul, UdonThani Rajabhat University, Thailand

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstracts
The purpose of this research were: 1. to development Active Learning Process 2. to study and compare students'achievement between pre-training and post-training, 3. to study classroom skills in research abilities, and 4. to study attitude towards doing classroom research. The research sample group consisted of 26 Mathematics student teachers, Faculty of Education Udon-Thani Rajabhat University. They were drawn by Cluster Random Sampling. The design of the research was one group pretest-posttest design . The instrument used in this research included : 1. Active Learning Process, 2. an achievement Test, and 3. an attitude questionnaire towards doing classroom research and 4. classroom research skill. The data were analyzed for percentage ,mean, standard deviation and testing hypothesis by using t-test for Dependent Samples. The results of this research were as follows : 1. The Active Learning Process consists of Operation with the Quality Cycle, Friendly Supervision, Participation Assessment , Research Base Learning, Coaching and Mentoring, there has evaluation from experts at very good level. 2.The students' pre-training achievement score was 16.27 or 46.49 % and the post-training achievement score was 28.08 or 80.23% and the post-training achievement score was higher than the pre-training achievement score. 3. The students have classroom research skill at a good level and have research-report 26 titles and 4. The students' attitudes towards classroom research was at good level.

Keywords: Active Learning Process, Internship Students

Introduction

There have been rapid changes in situations globally, and information through the Internet has been connected to one another, which affects human in society greatly. Therefore, humans need to change and adapt themselves in order to survive in living in this global effectively. According to the National Development Plan in Economics and Social Development No. 11 (2012-2016), it is considered that effective human beings should be able to be a leader in developing in any aspects that leads to high efficiency and effectiveness to the country. "Teacher" is noted to play an important role in developing the key issues since the Education Reform in 1999[1].

Faculty of Education, Udon-thani Rajabhat University has roles and responsibilities of producing and developing teachers to be good, intelligent, having voluntary mind in instructing the children to be the powerful source in developing the country To develop the Thai people to learn and develop themselves continuously, the research process is a must in seeking the answers. It is important to focus on developing students to use the research process as a tool to investigate knowledge and used as part of the lifelong learning process. Another important thing to do was to encourage teachers to integrate research into the learning process. It can be taught by encouraging and developing all students to use research as part of the learning process, self-development, develop students to have the skills to observe, invent, answer and make decisions in their own learning processes [2].

From the investigation of teaching activities and synthesis of research results in higher education in general, It appears that the teaching and learning activities of the students in the field of education was Passive learning: listening, lectures on theoretical concepts in the classroom. This is a way to educate students in the same way that students are not able to gain knowledge in practical situations effectively. Therefore, the researcher has studied the way to have design the activity of teacher professional experience as an active learning process the focus is on learners. The principle is that: the focus is on students to have the knowledge to be able to apply and use concepts, principles and theories. That will lead to practical, effective real situations. Under the supervision process and the friendly Counseling or Supervision at the time based on Deming Quality Cycle (Plan: Do: Check: Act). Throughout the duration of conducting classroom research by the teachers and the supervisors gain the knowledge and ability in the course of learning activities. In accordance with the teaching reform setting of the National Education Act BE 2542, the hypothesis is that Faculty of Education, Udon-thani Rajabhat University should have active learning process that will be used in students' practice and development. Teachers who have the knowledge and ability will be able to apply the principles, concepts and theories effectively. The researcher has set guidelines for conducting research using active learning in teacher's practice and development by integrating the concept of using the research-based. The quality cycle integrated with friendly supervision, assessment and participatory mentoring in real time. The research questions were: does this process effect students who have the posttest score higher than the pretest one? What is the ability to conduct classroom research and what are the students' attitudes towards classroom research? The results might help teachers to become teachers of the future with knowledge and understanding , can apply the principles, concepts and theories in Effective teaching and learning activities as "Professional teacher".

Purposes of this research

The purposes of this research were:
1. to development Active Learning Process in Mathematics Teachers Practice and Development of Faculty of Education at Udon-thani Rajabhat University
2. to study and compare classroom research achievement based on using Active Learning in Mathematics Teachers Practice and Development of Faculty of Education at Udon-thani Rajabhat University between the pretest score and the posttest score,
3. to study students' classroom research ability based on using Active Learning in Mathematics Teachers Practice and Development of Faculty of Education at Udon-thani Rajabhat University, and
4. to study the students' attitude towards classroom research based on using Active Learning in Mathematics Teachers Practice and Development of Faculty of Education at Udon-thani Rajabhat University.

Hypothesis of this Research

The hypothesis of this research was: The teacher Internship students in Mathematics Teachers Practice and Development of Faculty of Education at Udon-thani Rajabhat University received classroom research meeting with the posttest score higher than the pretest score.

Active Learning process in teacher practice and development framework of students in Mathematics Teachers Practice and Development of Faculty of Education at Udon-thani Rajabhat University.

From the literature review, the researcher led research base for the students learning from research report [3] and studying and real performance[4][5][6] under friendly supervision [7] emphasize the process of Quality Cycle (planning, doing, checking, and acting) of students in all steps. Start analysis research problem to writing research report as shown in Figure 1.

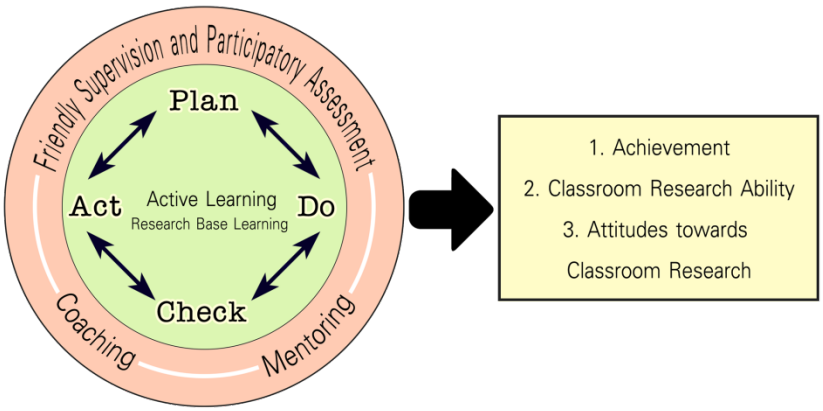


Figure 1 Active learning process

From Figure 1, it can be described that Active Learning is the process for developing classroom research. This process consists of:
1. Operation with the Quality Cycle; Plan, Do, Check and Act

2. Friendly Supervision is the introduction and helping students to conduct classroom research by supervisor teacher using friendly process (telling question-answer and introducing).
3. Participation Assessment; the supervisor teacher and students work together to assess proposal and classroom research to report the development. Research Base Learning is a design for students to study research for master's and doctoral degrees; this process operates under the introduction and cooperation for developing classroom research between the students and a supervisor teacher.
4. Coaching is the process for introduction and helping students about classroom research from a supervisor teacher.
5. Mentoring is the process for introduction and helping students about classroom research from a mentor teacher in school.

Research Methodology

1. Nature of Research
Research and Development
2. Population and Sample
2.1 Population were internship student teachers of Faculty of Education, Udon-thani Rajabhat University in academic year 2013.
2.2 Sample were internship student teachers of Faculty of Education, Udon-thani Rajabhat University in academic year 2013 using Cluster Random Sampling.
3.Variables this research
3.1Independent Variable was Active Learning Process in Teacher Practice and Development
3.2 Dependent Variables were:
3.2.1Classroom research Achievement
3.2.2 Classroom research Ability
3.2.3Attitudes towards Classroom research

Research Instrument

1. Active learning that was the student's responsibility to learn from the research and research process was employed under the friendly supervision process, focussing on the processes of the quality cycle (Planning, Doing, Reflection and Improvement) evaluated by the experts at very good level.
2. An Achievement test with multiple choices of 5 options, 35 Items which the validity was 1.00, difficulties between 0.35-0.64 and Discrimination was higher than 0.31 and the reliability was 0.85.
3. An Evaluation form for assessing classroom research abilities of Mathematics student teachers Faculty of Education, Udon-thani Rajabhat University was a rubric scoring classified by quality of work of 5 levels (most, much moderate, little, and least) which the validity was 1.00 and the reliability in scoring was 0.81.
4. An attitude questionnaire toward classroom research which was a 5-level rating scale in most, much, moderate, little, and least with the validity was 1.00 all Item and the reliability in response was 0.82

Results of Analysis Data

1. The study results and comparison pretest and posttest classroom research achievement of mathematics internship students by Active Learning Process in Product and Developing Educational Faculty Udon-thani Rajabhat University. The results of analysis data was table 1

Table 1 mean percent standard deviation and t-test for dependent sample between pre-training and post-training classroom research achievement of mathematics internship students by Active Learning Process in Product and Developing

Testing	mean	percent	S.D.	t-test
pre-training	16.27	46.69	1.25	39.52**
post-training	28.08	80.23	1.57	

**** significant level .01**

From table 1 the results of analysis data was the students have pre-training classroom research achievement equal 16.27 or 46.69 percent and post-training equal 28.08 or 80.23 percent and posttest higher than pretest at significant level .01

2. The study results attitude toward classroom research of mathematics internship students by Active Learning Process in Product and Developing Educational Faculty Udon-thani Rajabhat University. The results of analysis data was table 2

Table 2 mean percent standard deviation of attitude toward classroom research of mathematics internship students by Active Learning Process in Product and Developing

Result	mean	S.D.	Attitude level
attitude toward classroom research	4.09	0.18	Good

From table 2 the results of analysis data was the students have attitude toward classroom research of mathematics internship students by active learning process in product and developing equal 4.09 or good level

3. The study results classroom research ability of mathematics internship students by Active Learning Process in Product and Developing Educational Faculty Udon-thani Rajabhat University. The results of analysis data was table 3

Table 3 the assessment classroom research ability of mathematics internship students by Active Learning Process in Product and Developing

classroom research ability	assessment results		
	mean	S.D.	quality level
Total	3.81	0.12	Good

From table 3 the results of analysis data was the students have classroom research ability of mathematics internship students by active learning process in product and developing equal 3.81 or good level

Research results

1.Active Learning is the process for developing classroom research, there has evaluation from experts at very good level. This process consists of:

1.1 Operation with the Quality Cycle; Plan, Do, Check and Act

1.2 Friendly Supervision is the introduction and helping students to conduct classroom research by supervisor teacher using friendly process (telling question-answer and introducing).

1.3 Participation Assessment; the supervisor teacher and students work together to assess proposal and classroom research to report the development.

1.4 Research Base Learning is a design for students to study research for master's and doctoral degrees; this process operates under the introduction and cooperation for developing classroom research between the students and a supervisor teacher.

1.5 Coaching is the process for introduction and helping students about classroom research from a supervisor teacher.

1.6 Mentoring is the process for introduction and helping students about classroom research from a mentor teacher in school.

2. The students had classroom research achievement in the pre-test score was 16.27 or 46.49 % and the posttest score was 28.08 or 80.23 % and the posttest score was higher than the pretest score.

3. The students who have been using active learning in the practice and development of teachers had attitudes towards classroom research was at a good level and have research-report 26 title.

4. The students who have been using active learning in the practice and development of teachers had classroom research ability was at a good level.

Discussion

1.Active Learning is the process for developing classroom research, there has evaluation from experts at very good level. This is because : 1) analyze the research results, conditions and the problems of conducting research in the classroom of teachers, then determine the basic concepts of the Active Learning Process 2) Bring the components of Active Learning Process to the experts to evaluate the suitability, found that there have suitability at very good level and 3) from teaching experience and researching in the classroom Allow students to do research and continuously conducted their own research for more than 20 Year of the researcher.it has been used to provide friendly consultations during research.

2.The students' classroom research achievement in the pretest (pre-test) was 16.27 or 46.49 % and in the posttest was 28.08 or 80.23 % respectively. The posttest score was higher than the pretest which is consistent with the hypothesis. This might be in that in this process, the training was conducted before the student teachers get into practice at schools. This is a review of previous knowledge on the issues that students have experienced from the study of educational research and related subjects then described in terms of integration that will be applied in real situations. A sample of personal research that is a scholar work of the teachers or thesis presented as a case

study. With a prototype of the research framework developed and the case study explain the details to the students step by step with understanding with the activities of the research process.(Writing a Learning Plan / Simulation / Data Analysis / Presentation, Analysis and Summary). The students were divided into small groups based on the level of the students to teach in the practice of professional teachers in schools will be able to discuss either during implementation of research in network. The students were assigned to conduct research project under friendly supervision of Mathematics advisors. The students' presentation to friends question by the question, then the team of advisors provided suggestions to fill in the missing point or don't understand students. The results of this research are consistent with the findings of Vallakitkasemsakul [8] Swanapaiboon and Others. [9], Greentree [10], Tammachad. [11] , Phaungkham [12],and Sitekuntod.[13].

3.The students' attitudes towards classroom research of professional experienced student teacher was at a good level. This is because the researcher has explained the importance and necessity of classroom research in the clearly defined content in National Education Act, B.E.1999 in that classroom research plays an important role and responsibility of the teachers, which can be used to develop the learning and teaching to the students effectively. The results of the research can be used as a result of the academic development of the students themselves. In addition, the classroom research is used as evidence for the results of the teacher experiences and receive a professional teacher certificate. In the training, there is a clear understanding, focusing on the study of individual research samples of teachers and the thesis of graduate students.Including the simulation scenario by working together in small groups according to their interests or classification by grade level of students to practice professional experience and to present the work of the group with friends Asked to show the knowledge that occurred under the care of the team of consultants, that each student should adapt to the actual situation in each school. The research project that each student will have to adapt to the actual situation in each school where they practice the professional teacher. The results of this research are consistent with the findings of Vallakitkasemsakul [8] Swanapaiboon and Others. [9], Greentree [10], Tammachad.[11],Phaungkham [12],and Sitekuntod.[13].

4.The students have the ability in conducting classroom research at a good level, though students have trained before practicing teachers' professional experience, resulting in understanding that they can practice, set the scenario for students to practice together, (Write research proposal / write a learning plan / design learning media / construct achievement test) and to be friendly supervised by Mathematic Advisor and internship the problem has been resolved. Then to continue to perform the next step effectively until the completion of the professional experience. The results of this research are consistent with the findings of Vallakitkasemsakul [8] Swanapaiboon and Others. [9], Greentree [10], Tammachad. [11] , Phaungkham [12],and Sitekuntod.[13].

Suggestions

1. Suggestions on the implementation of the research results.

1.1 The researcher must have enough free time to provide good supervision to the schools. For students who are experiencing problems during the classroom research,

they have the opportunity to receive counseling and Direct instruction successful in classroom research.

1.2. The students prepare the research proposal and understand what they are going to implement clearly and shared in the nature of the network. In order to be able to apply a predefined layout, you can edit it. Improve the use of schools in the real situation effectively.

2. Suggestions for the further research

Suggestions for further research are as follows:

2.1 Should develop the model / method of distribution of consultancy / supervision in the nature of the research network. By using local teachers or personnel, they are friendly coordinated with the researcher who is the supervisor of the university, the teacher or staff will be able to develop professional skills in the field of classroom research.

2.2 Should study and develop learning resources in classroom research or thesis or personal research the students find it easier. Because there are limitations to the local search network system, the educational institution where students practice their professional experience is located.

2.3 Should study the ability of students to think carefully after successful research such as Problem solving, Analytical thinking, Synthetic thinking or critical thinking.

Acknowledgements

The authors wish to thank1) the experts for checking the quality of the equipment and the experts forevaluating the research report in the classroom. 2) internship students were sample group. 3) the Rajabhat Udon-thani University for supporting research and registration funds for research presentations and 4) My family and my friend who give encouragement in this work.

References

National Education Commitsion ,Office.(1996). kanpatirū kān fukhat khrū : rūam kan khit bæng kan tham . Bangkok : Pimdee co.th.

Phukiat,L.(2009). kānsǭn bæp khrōng ngān læ kānsǭn bæp chai kānwičhai pen thān : ngān thī khrū prathom thamdai.Bangkok : SARA & SUN PRINTING CO., LTD.

Bronislaw,C and Vrunda,P (2004). Teaching-research and Design experiment : Two methodologies of integrating research and Classroom practice. New York : University of New York.

Sinararat,P. (2002). akkān sǭn bæp nēn kānwičhai nai radap ‘udomsuksā Edited by Paitoon Sinararat.Bangkok: Research Department, Center for Textbooks and Academic Documents.

Khemmani,T.(2006). kānčhatkān rīanrū dōi phū rīan chai kānwičhai pen sūan nưng khǭng krabūankān rīanrū : lakkān næothāng læ withīkān nai kān rīan kānsǭn dōi phū rīan chai kānwičhai pen sūan nưng khǭng krabūankān rīanrū . Editors by Research and Development

Pithiyanuwat,S. and Boontrim,T. (2002). rūpbæp kānsǭn bæp Research Base Learning. The Secretariat of the Council of Education Teaching. Chulalongkorn University.

Harris,B.M. (1975). Supervisory Behavior in Education. 2nd ed. Englewood Cliffs. New York : Prentice –Hall.

Vallakitkasemsakul,S. (2001). kānphatthanā rūpbæp kānsǭn dōi chai nǣokhit kānwičhai pen thān phūa phœ̄m thaksa kānwičhai . Udon Thani: Rajabhat Institute Udon-thani

Swatanapaiboon,S. and Others (2002). rūpbæp kānphatthanā khanāčhān læ chut kān rīanrū dūai ton‘ēng samrap kānphatthanā samatthana thāng wichāchīp khrū dōi chai kānwičhai pen thān . Bangkok : Bureau of Educational Policy and Planning. National Education Commission. The Prime Minister.

Greemontee,D.(2008) kānphatthanā kitčhakam kān rīanrū wichā sangkhommasuksā chanmatthayommasuksā pī thī nưng sāra sētthasāt rūang kān bǭriphōk dōi chai withīkān rīan kānsǭn thī nēn kānwičhai pen thān .Independent study Master Degree In Curriculum and Instruction.

Tammachad,J. (2009). kānwičhai læ phatthanā rūpbæp kānčhatkān rīanrū bæp chai wičhai pen thān nai rāiwichā kānwičhai thāngkān suksā .Faculty of Education Prince of Songkla University Pattani Campus. Mahasarakrm University.

Phaungkham ,T. (2011). kānsuksā phon samrit thāngkān rīan læ thaksa phūnthān kānsāng ‘ongkhwāmrū wichā sǭ prawattisāt khǭng nakrīan chan matthayommasuksā pī thī thī rīan čhāk kānčhatkān rīanrū dōi chai kānwičhai pen thān .Education Master thesis. Curriculum and teaching branch. Khon Kaen University.

Sitekuntod,V. (2012). kānsuksā kānčhatkān rīanrū bǣp chai wičhai pen thān nai rāiwichā BUS sāmrc̣isī rabīap withī wičhai thāng thurakit Bangkok : Promote and developing Instruction Centre. Sriprathum university.

Contact email: dr_somchai080707@hotmail.com

Interdisciplinary Learning in Secondary Schools From Multiple Prespectives

Ming Yan Tsui, University of Hong Kong, Hong Kong
Ida Ah Chee Mok, University of Hong Kong, Hong Kong

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract
The purpose of this study is to investigate how interdisciplinary learning enhances lower-form students' learning in Hong Kong secondary schools and is also to provide a practical example for teachers in secondary schools to promote interdisciplinary learning beyond the existing curriculum. The research was carried out with 121 secondary 2 students aged 12 to13 in the school year of 2019-2020. Students participated in a STEM project called "Renewable Energy". First, in the project, teachers taught the subject knowledge that related renewable energy during the Mathematics, Geography and Integrated Science lessons. Second, students had to complete different learning tasks during their lesson, such as statistical poster, drawing and created an experiment. Third, students had to combine the outcome of the learning tasks by setting up a booth to present their findings for other students and teachers. Quantitative and qualitative data were used to investigate students' learning in the project for all subjects. After the completion of the project, the students were invited to answer a questionnaire. The questionnaire included a Likert scale and an open-end question in order to get more in-depth information of the attitude and motivation of the students towards the project on Mathematics, Geography, Integrated Science and the overall view of the project in multiple perspectives. The analysis and discussion will be launched in the conference.

Keywords: Interdisciplinary Learning, STEM education, Project Learning, student attitude, motivation

iafor
The International Academic Forum
www.iafor.org

Introduction

Knowledge is deeply interconnected and interwoven. Interdisciplinary Learning (IL) is one of the key trends in education in different countries. IL can enhance students' motivation and help them to acquire different skillsets. Therefore, interdisciplinarity research and STEM education have been promoted in high education and secondary schools respectively. However, all the subjects are taught separately and independently in secondary schools in Hong Kong. Therefore, Hong Kong Education Bureau has promoted the IL via project-based learning in order to let students have a better understanding of the inter-connection among different subjects. In addition, IL also provides students a platform to acquire various skills of the 21st century, namely: critical thinking, teamwork, collaboration, communication and problem solving. Moreover, IL is to associate students' learning highly with innovation. Even though IL is deemed beneficial to secondary school students, the implantation rate is still low among secondary schools. Some limitations such as lack of teaching and learning materials related to IL, time constraints and low teacher readiness hinder teachers to implement IL. In order to promote IL more effectively, the view of students and teachers should be considered. Moreover, studies on IL are relatively fewer in the Asian context, especially in Hong Kong. Therefore, this study aims to evaluate the IL from the perspectives of both students and teachers and it also provides a practical example that specially fits for the Asian context.

Theoretical Backgorund

Interdisciplinary Learning

IL refers to "leaners intergrade information, data, techniques tools, perspectives, concepts, and/or theories from two or more disciplines to craft products, explain phenomena, and solve problems in ways that would have been unlikely through single-disciplinary means"(Mansilla, 2016). Various researches propose that IL can be beneficial for students' learning. First, Lattuca, Voigt, and Fath (2004) propose that IL promotes learning through sociocultural and cognitive dimension. In sociocultural dimension, IL may enhance the evolution of students' epistemological beliefs with cultural and social interaction. In the cognitive dimension, IL provides strong interconnection for the prior knowledge and new knowledge, and also enhances student's motivation with providing a real-life situation problem. Second, Klein and Newell (1997) suggests that students acquire different skillsets to solve the economic, technological and social problems. Nevertheless, secondary teachers believe that they are experts in their subjects, but they seldom see themselves as lacking knowledge in other disciplines. Second, teachers have to use a lot of time to prepare the IL materials. Third, the schedule and curriculum of traditional discipline-specific schools have limitations in promoting IL.

Interdisciplinary Learning with multi perspectives

In order to investigate the effectiveness of the IL, Greeno (1997) proposes three general perspectives to investigate how and why interdisciplinary learning, namely, behaviorist perspective, the cognitive perspective and situative perspective. Each perspective relates to a different aspect of learning. First, reasoning, problem solving,

and the conceptual understanding are concerned in behaviorist perspective. Second, sense-making of a community and practices of inquiry are concerned in situative perspective. However, later on, Lattuca et al. (2004) argues that learning practices do not belong to cognitive, situative or behaviorist perspective only. They propose through different kinds of theoretical lenses to investigate IL. First, they suggest IL engages students' Prior knowledge and experience using cognitive theories. Second, they propose that IL encourage effective thinking by situated learning theory. Third, they believe that IL promotes (construct meaning???) (constructive learning) in the classroom by Constructivist. Fourth, they suggest that IL motivates student to learn by students' epistemological beliefs. Finally, IL develops multiple perspectives on issues and problems. Based on the above theories, they identify some key ideas about how IL succeeds: '(a) to forge connections to students' prior knowledge and experience; (b) to assist students in developing complex understandings in particular subject areas; (c) to promote the development of sophistical views of knowledge and learning; (d) to influence thinking skills; (e) to build students' capacity to recognize, evaluate, and use differing (multiple) perspectives; (f) to engage students' interests and to enhance motivation; and (g) to enact constructivist and active leaning strategies.' (Lattuca et al., 2004). The Lattuca provides all round perspective to evaluate of IL. Therefore, the theoretical framework is adopted from Lattuca et al. (2004) in this study.

Cognitive Theory is a psychological approach using the humans' thought to explain the change of human behavior (Shuell, 1986). In education, Cognitive Theory states that learning is a goal-oriented, active and constructive process, and is also based on students' mental activities.

Situated Learning Theory explains how students acquire different skillsets and extend the theory to study the relationship between social communities and learning (Lave & Wenger, 1991).

Constructivism is a belief that knowledge is constructed by leaners' prior knowledge or own experiences (Steffe & Gale, 1995).

Epistemological Beliefs analyses people's learning, work and subjectivity through understanding the nature of learning and knowledge (Yapici & Akbayin, 2012).

Backgorund of the Study

In the school year 2016-2017, Finland promoted phenomenon-based learning among secondary schools as one of the main concerns in the new National Curriculum Framework, the concept of phenomenon-based learning which develops from IL. According to the new NCF, every Finland secondary school had to intergrade different subjects together and created a theme, project or course for students-based learning. The change engaged students' learning motivation and academic performance. Therefore, several educators believe that Finland education system is a success.

In order to promote IL in Hong Kong secondary schools, project based-learning has been launched. However, not many schools have adopted it because of lacking

teaching time, unrelated to public examinations, unfamiliar with the project learning and limited teaching resources. Therefore, EDB launched a scheme for secondary school teachers, which called "I-journey"-programme for secondary school teachers (Interdisciplinary Learning & Entrepreneurship Education). In phase one, the project-proposal was designed and modified with the support of Finland teachers and professors in a 5-week visit in Finland. In phase two, The STEM project called "Renewable Energy" was implemented in my school in the school year after phase 1 and supported by Hong Kong professors. This study draws upon the data generated in the project.

Singfiance of the Study

In the previous studies, the content of IL has been developed by research. Therefore, it may not fit for the existing curriculum. In this study, the project will be developed in the existing secondary school curriculum in Hong Kong. Furthermore, there are relatively few studies on IL in the Asian context, especially in Hong Kong. Therefore, the evaluation of the project on students' attitudes and motivation in multiple perspectives will be conducted.

Research Questions

Adopting Lattuca et al. (2004)'s multiple perspectives on IL, the study will investigate whether the project can promote IL effectively in following dimensions or not?
a. connections to students' prior knowledge and experience
b. development of complex understanding in particular subject areas
c. development of sophistical views of knowledge and learning
d. students' interests and motivation

Methodoloy

The development of the project is based on the phenomenon-based learning. All S.2 student participants aged 12-13 participated in the project in the school year of 2019-2020. They were grouped into six groups for the project about Renewable Energy. The title of the project called "Save the World! Start from you!". Geography, Mathematics and Integrated Science are involved in this project. Students had to learn the energy from global perspective to Hong Kong situation. They had to extend the knowledge to their personal dimensions. Finally, authentic learning was embedded in this project. Firstly, all students were required to attend a talk organized by China Light & Power Company Syndicate, providing the situation about the demand and consumption of Energy in Hong Kong. Secondly, students had an opportunity to create their own solar charger and used it for science investigation.

The learning outcome

The learning objective of this project were as follows: (1) to enhance students' awareness of the connection of knowledge among Geography, Mathematics and Science. (2) to develop moral and civic values, as well as positive attitude. (3) to develop students' genic skills such as study skills, collaboration skills, ICT skills,

problem solving skills, analytical skills, presentation skills and critical thinking and (4) to develop the culture of reading.

Aligned with another school-based scheme

In order to align with Hong Kong curriculum, contest-based reading and Bring Your Own Device (BYOD) scheme were also integrated in this project. In contest-based reading, students were required to read a traditional reference book, an e-book, an article or online materials that suggested by their subject teachers to broaden their horizon of knowledge about energy. In the BYOD scheme, every student had his own iPad for the project. First, teachers mainly used Google Classroom to deliver and collect the learning materials as well as students' assessments respectively. Second, students also used OneNote to take their own notes and collaborated with their classmates. Third, students had to know how to use excel to plot the graph for presentation and to manage basic computer drawing. Lastly, students had to use the camera of iPad to record their experiments for their peers' and teachers' evaluations.

Learning outcomes

At the end of the project, the display of students' achievements was used to exhibit students' work. Students had to combine the outcomes of the learning tasks to set up a booth to present their work for their fellow students and teachers. It included (1) to express sustainable energy with pictures and notes from global perspective. (2) to design a Statistical Poster with the theme "Electricity in Hong Kong". (3) to create their own solar chargers and the reports of their science investigation. The implementation plan of the project is shown in table 1 below:

Table. 1 The implementation plan of the project

Month	Subject	Learning Objective/ Learning Tasks	Assessment
Oct	Kickoff	All students attended a talk organized by China Light & Power Company Syndicate and the project was introduced to students.	
Oct - Nov	Geography	Subject knowledge What are the main energy sources in the world? Major renewable and non-renewable energy sources Do we have other options? Advantages and disadvantages of renewable energy How to meet future energy needs in a more sustainable way? Energy solutions at different levels Attitudes To cultivate a sense of responsibility for energy	To express sustainable energy with pictures and notes from global perspective

		conservation To understand the need to change lifestyles and habits to save energy	
Nov - Dec	Mathematics	Subject knowledge To collecting data from the website of the Census and Statistics Department: "Power supply and use in Hong Kong" How to analyse data To choose the right chart and to express the data Data misuse Attitudes To train students to examine the accuracy of different data analysis	To design a Statistical Poster with the theme "Electricity in Hong Kong"
Dec - Mar	Integrated Science	Subject knowledge To understand the basic knowledge of circuits and drawing circuit diagrams To learn circuit connection To recognize current, voltage, resistance and measurement methods Attitudes To cultivate curiosity and interest in science To cultivate the ability of recognizing safety issues in daily life	To create their own solar chargers To prepare the Experimental report
		Group experiment (Make a solar charger) Explore the content: To understand the principles of solar cells To compare the effects of different assemblies (series, parallel) To explore the power generation under different conditions, such as light intensity, length of sunshine, shade, number of solar panels, etc. To measure the time required to charge a solar charger	
Apr	Integration	To exhibit students' work	To Combine their work from different subjects so as to setup a booth for their projects.

After the completion of the project, all the students were invited to do a questionnaire. The questionnaire included three parts: (1) demography information (2) five-scale

Likert questions and (3) open-end questions. The students' questionnaire included Likert questions. They were about their attitudes towards the overall project and the 4 subjects namely Mathematics, Geography and Integrated Science. In addition, it comprised the 4 different dimensions: A. To forge connections to students' prior knowledge and experience. B. To assist students to develop complex understanding in particular subject areas. C. To promote students' development of sophistical views of knowledge and learning. D. To engage students' interest and to enhance their motivation. The Open-end questions which were about the examples and the suggestions for the improvement of the above 4 dimensions were included. The project ended in Mar 2019. However, due to the schedule's problem, the project was delayed to May 2019. Therefore, the results and discussion will present it later.

Acknowledgement

I would like to express my deepest gratitude to the i-Journey administrators from the Hong Kong Education Bureau and my school colleagues for their support in completing my project.

I would also like to express my gratitude to the professors from The University of Tuku and The Hong Kong Baptist University for their guidance and support to my project.

Furthermore, I would like to thank my i-Journey classmates who helped me with their valuable advices. Their contributions have been helpful in various phases of my project.

Reference

Greeno, J. G. (1997). Theories and Practices of Thinking and Learning to Think. American Journal of Education, 106(1), 85-126.

Klein, J. T., & Newell, W. H. (1997). Advancing interdisciplinary studies. Handbook of the undergraduate curriculum: A comprehensive guide to purposes, structures, practices, and change, 393-415.

Lattuca, L. R., Voigt, L. J., & Fath, K. Q. (2004). Does interdisciplinarity promote learning? Theoretical support and researchable questions. The review of higher education, 28(1), 23-48.

Lave, J., & Wenger, E. (1991). Situated learning: Legitimate peripheral participation: Cambridge university press.

Mansilla, V. B. (2016). Interdisciplinary Learning: A Cognitive-Epistemological Foundation. In: Oxford Handbook for Interdisciplinary Oxford, UK.

Shuell, T. J. (1986). Cognitive conceptions of learning. Review of Educational Research, 56(4), 411-436.

Steffe, L. P., & Gale, J. E. (1995). Constructivism in education: Lawrence Erlbaum Hillsdale, NJ.

Yapici, İ. Ü., & Akbayin, H. (2012). The effect of blended learning model on high school students' biology achievement and on their attitudes towards the internet. TOJET: The Turkish Online Journal of Educational Technology, 11(2).

Contact email: ivanmytsui@hku.hk
iacmok@hku.hk

The Effects of Inquiry-based Learning on Understanding Writing and Presentation Classroom Research Proposal of Science Student Teachers

Chanchira Choomponla, UdonThani Rajabhat University, Thailand

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstracts

The purpose of this research were to study 1) understanding of classroom research, 2) writing ability of classroom research proposal, 3) presentation ability of classroom research proposal, and 4) attitude toward the inquiry-based learning of science student teachers' that they were studying 4th years in the second semester of academic year 2019 at UdonThani Rajabhat University in Thailand, utilizing 18 students which were selected by cluster random sampling. The research instruments were 1) lesson plans of doing classroom research in science based on inquiry-based learning activity, 2) understanding of classroom research test, 3) writing ability of classroom research proposal assessment form, 4) presentation ability of classroom research proposal assessment form, and 5) attitude toward the inquiry-based learning questionnaire. The data were analyzed using mean, standard deviation, percentage and t-test one group for hypothesis. The results show that the science student teachers' understanding of classroom research, writing ability and presentation ability of classroom research proposal, and attitude toward the inquiry-based learning were at the "good" level after they participated in the series of the learning activities. They could explain objectives to make classroom research, research methodology, data collection, data analysis, statistics, and using results of classroom research to development science teaching in classroom. They showed maneuverable and presentation easy to understand. Additionally, they understand "why we do classroom research" and "classroom research essay to do". Therefore, inquiry-based learning is discussed to guide teachers how to organization of activities as appropriate for help students acquire knowledge and gain necessary skills to achieve in the future.

Keywords: Inquiry-based Learning, Classroom Research Proposal

iafor
The International Academic Forum
www.iafor.org

Introduction

Classroom Research:

A classroom research project in the imagination, imagining what research is, what a research report looks like and what it means to be a researcher. And students do not easily imagine themselves as researchers. Of all academic tasks, research is the most intimidating. It is often surrounded in mystique and seen as demanding and difficult. Can I do this? Will succeed in writing a good research report? These are common questions in the first stages of the research process (Clive Millar, 2016). The classroom is the space where the fun and excitement of learning happen. Most of the teachers in these classrooms do not think of themselves as researchers. This is a misconception, however. Engaging in classroom research can be done by practitioners and indeed it is something that teachers should do. As Nunan and Bailey (2009) explain, there are different possible definitions for "classroom research". Fundamentally, classroom research involves doing research in school settings about teaching and learning. Julian Hermida (2001) explain that classroom action research is a method of finding out what works best in your own classroom so that you can improve student learning. There are many ways to improve knowledge about teaching. Many teachers practice personal reflection on teaching, other conduct formal empirical studies on teaching and learning. Classroom action research is more systematic that personal reflection but is more informal and personal that formal education research. In this article I define classroom research as a process of investigating questions about teaching and learning that is undertaken in a systematic way by teachers who want to better understand their own work. So in essence, classroom research is research into what teachers do that affects their teaching of children, of what children bring to the learning environment and of how they are affected by teaching. It is about the school as the centre for enquiry (McKernan, 1996), and it underpins the professionalism of teaching (Millett, 1999). Thus, classroom research covers areas such as the following:

- Teachers' knowledge, understanding, decisions, values, experience, confidence, etc
- Children's learning, responses, understanding, values, development, etc
- Teaching approaches and interactions
- Curriculum organisation, content selection, scheme and lesson planning
- Subject resources, their quality, appropriateness and use

Teachers may be less enthusiastic about the idea of doing research in class, if you think of research as something that includes a large number of participants, numerical data and statistical analysis. This is not necessarily being the case with classroom research, where the main focus is on the interaction among learners and teachers. The aim of classroom research is to increase our understanding of classroom learning and teaching (Allwright & Bailey, 1991). For example, you may want to explore the strategies young learners rely on in order to make sense of the stories they hear, or you want to find out more about the way teachers' questions scaffold classroom interaction while talking about a story. Another way to start research is to introduce a small change in the teaching process (for example, varying the seating arrangement, using stories, asking open questions, integration culture and art work, or using English in class) and the observe what benefits these changes bring in your class and in particular, how they enhance language learning. However, teachers are usually

reluctant to participate in action research and yet it has major benefits as a tool to improve reflection on classroom teaching and student learning. “If classroom research is to become a habit rather than a fluke, additional forces must come to bear” (Bondy, 2001). Brondy continues to say that state department of education through to school boards and university must take responsibility to support classroom research. Exposure to action research must be established earlier in the pre-service years in order for teachers to be prepared use research in their classroom.

Inquiry-based learning

An old adage states: "Tell me and I forget, show me and I remember, involve me and I understand." The last part of this statement is the essence of inquiry-based learning, says our workshop author Joe Exline (2004). Inquiry implies involvement that leads to understanding. Furthermore, involvement in learning implies possessing skills and attitudes that permit you to seek resolutions to questions and issues while you construct new knowledge. In our quest as educators to prepare our kids to enter the world to thrive and succeed, we constantly strive to empower them with the best aptitudes for doing so in a rapidly-changing world. These are the abilities of independent and critical thinking, creativity, curiosity, and the drive to learn anywhere at anytime. Ultimately, few instructional methods accomplish this quite like inquiry-based learning (Lee Watanabe-Crockett, 2019). Inquiry-based learning is not a new teaching strategy. In fact, you most likely learned about it in college while studying about John Dewey’s educational reform. Dewey set out to advocate child-centered learning that was based on inquiry and real-world experiences. Unfortunately, in today’s educational system, children are less likely to inquire and ask questions, and more likely to be subservient and listen (Janelle Cox, https://www.teachhub.com/all-about-inquiry-based-learning). According to Alberta learning (2004), explain about inquiry based learning is a process where students are involved in their learning, created essential questions, investigate widely, and then build new understandings, meanings and knowledge. That knowledge is new to the students and may be used to answer their essential questions, to develop a solution, or to support a position or point of view. The knowledge is usually presented to others and may result in some sort of action. Simply put, Inquiry is the personal path of questioning, investigating, and reasoning that takes us from not knowing to knowing (Ferlazza & Boss, 2015). While rote memorization is an important skill to master, inquiry is a skill that will take you into the 21st century. In today’s society, our workforce demands individuals be inquisitive and be able to solve complex problems. Inquiry implies a need to know, where students seek answers and want to find resolutions. Educators can nurture these inquisitive minds so that students can carry this mind set with them throughout their life. So inquiry based-learning has other advantages as well:
Students who are actively involved in the classroom develop problem-solving skills which can be applied to their schoolwork as well as later in life.

- An inquiry-based approach can be used in any classroom and in any age group.
- Older students will benefit from more sophisticated questioning, but inquiry can be implemented into everyday activities with younger students.
- Inquiry-based learning works extremely well in a collaborative environment. Since inquiry is based on questioning, you will need at least two people to work with, one to ask and one to answer.

- Struggling students who do not do well in a teacher-led classroom respond well to an inquiry-based learning environment. It helps builds their confidence and self-esteem.

Therefore, inquiry-based learning is an approach to learning that emphasizes the student's role in the learning process, including small-group discussion and guided learning. Instead of memorizing facts and material, students learn by doing. This allows them to build knowledge through exploration, experience, and discussion. Rather than the teacher telling students what they need to know, students are encouraged to explore the material, ask questions, and share ideas.

The effects of inquiry-based learning on understanding writing and presentation classroom research proposal of science student teachers

The classroom research was given emphasis in this study as it is a compulsory course for student teachers of all bachelor of education teacher professional program at UdonThani Rajabhat University in Thailand, which student teachers who studying 5th years that they internship in school and have to complete the classroom research to fulfill the requirement of the bachelor of teaching program. The classroom research proposal, it is like a blueprint that specifies the details of what proceeds to do, why do, How to do, where to do, when do, and do with who you are. With the aim of the researcher or the reader knows the framework of what to research, what is the purpose, how will the research methods be used, and how is the research useful. So before going to internship in school of student teachers should understand, writing ability and presentation ability of classroom research proposal. Therefore an attempt has been being made through this study to find the "effects of inquiry-based learning on understanding, writing and presentation classroom research proposal of student teachers". The participant of this study were 18 science student teachers' that they are studying 4th years in the second semester of academic year 2019 at UdonThani Rajabhat University in Thailand. The finding of the present study will help student teachers know about the research framework, research process, and research guidelines that enable to achieve pass classroom research and develop our teaching to do well.

Objectives of the study

The purpose of this study are to study understanding, writing ability, presentation ability, and attitude toward activity learning about classroom research proposal of science student teachers' through the inquiry-based learning. A research question was developed to guide the study: 'How did the process of inquiry-based learning develop student teachers understanding, writing and presentation about classroom research proposal?"

Methods of this study

This research conducting was separated into 2 phases as follows:

Phase 1: Developing and identifying educational quality of inquiry-based learning activity

1.1 Developing six inquiry-based learning activities to development understanding, writing ability, presentation ability about classroom research proposal by review literature about inquiry-based learning, classroom research method, and writing classroom research proposal. The detail of inquiry-based learning activity and contents were as follows:

1.1.1 The phases of inquiry-based learning activity consisted of 6 steps in this study adapted from Kath Murdoch (http://blog.istp.org/the-inquiry-learning-cycle)

Step 1: Tuning In; Teachers tune in to students' thinking and activate their prior knowledge; they design tasks that make the students' thinking visible.

Step 2: Finding Out; Learning communities (we consider both teachers and students to be learners) think as researchers and gather information from a variety of sources. Students are extended to go beyond the known and are challenged to use their skills to acquire new knowledge.

Step 3: Sorting Out; Learners analyze, sort, and categorize information, identifying patterns and creating meaning.

Step 4: Going Further; Learners are encouraged to further their inquiry by investigating areas of personal or shared interest.

Step 5: Making Conclusions; Learners are provided with time and space to draw conclusions and make connections between ideas and contexts.

Step 6: Taking Action; Learners reflect on their new learning and the implications for personal or shared action. Teachers encourage and empower students to apply their learning to new contexts, share with others, and connect with real-life situations.

1.1.2 Six contents of classroom research proposal using in inquiry-based learning activity, consisting with 1) Research topic, 2) Literature review, 3) Research framework, 4) Research design and method, 5) Classroom research proposal, and 6) Classroom research presentation. Each activity was for 4 hours that required 24 hours in total.

1.2 Finding educational quality of inquiry-based learning activity by five experts' evaluation in science education and educational research. The results of educational quality were at good level.

Phase 2: Instructional experimenting with science student teachers

2.1 The sample of this study were 4th year science student teachers in Faculty of Education at UdonThani Rajabhat University, UdonThani, Thailand, utilizing 18 students who were studying in the second semester, the academic year 2019, selected by cluster random sampling.

2.2 This study were two variables, the independent variable was instruction by using the inquiry-based learning activity and the dependent variable were understanding, writing ability, presentation ability about classroom research proposal, and attitude toward activity learning.

2.3 Hypothesis of this study: After the experiment, the student who learned through the inquiry-based learning activity had an average score in understanding classroom research higher than before, writing ability classroom research proposal at the "good" level, presentation ability classroom research proposal at the "good" level and attitude toward activity learning at the "good" level.

2.4 The design of this study was a pre-experimental design. Research design used is one group pretest and posttest design (John & James, 2005).

2.5 The instruments evaluation of instructional experimenting was 1) understanding classroom research test, 2) writing ability classroom research proposal assessment, 3) presentation ability classroom research proposal assessment, and 4) attitude toward inquiry-based learning activity questionnaire.

2.6 The procedures in this study taught by using the inquiry-based learning activity, before starting experimental the sample group have been applied a scale of pretest of understanding classroom research test. The teacher was informed about the purpose of the study and the inquiry-based learning activity to develop understanding, writing, presentation about classroom research proposal then using instruction, during the process teacher was observed, the interaction between teacher-students and students-students; participation and contribution of students into learning environment and teacher as well as the physical conditions and material availability of the classroom. Teacher only provided questions, suggested approaches, gave feedbacks, and assesse understanding. After finished using instruction the researcher evaluate writing and presentation ability classroom research proposal. The sample group have applied a scale posttest of understanding classroom research test that the test same pretest and give opinions about the attitude towards inquiry-based learning activity on questionnaire.

2.7 The data analysis using mean, percentage, and standard deviations of measured quantities were determine and t-test for one samples and t-test for dependent samples done for hypothesis testing

Result of this study

1. Understanding classroom research: the result of understanding classroom research after applying inquiry-based learning activity, the means of the pretest and posttest of science student teachers have compared by t-test for dependent samples. Generally, research data of this can be summarized in table 1 as below.

Table 1: The comparison between pretest-posttest of understanding classroom research of science student teachers by using inquiry-based learning activity.

N	Score	Test	Mean	S.D.	%	t-test	
18	70	Pre	26.83	2.68	38.33	18.723**	p<.001
		Post	53.28	5.36	76.11		

Note.**p<.01

2. Writing, Presentation ability classroom research proposal and attitude toward inquiry-based learning activity: the result of each after applying inquiry-based learning activity, the means of the posttest of science student teachers have compare with criteria standard at good level (means score: 3.51) by t-test for one samples. The research data of this can be summarized in table 2, 3, and 4 as below.

Table 2: The comparison between posttest and criteria standard of writing ability classroom research proposal of science student teachers by using inquiry-based learning activity

N	Test	Score	Mean	S.D.	%	criteria standard	t-test	
18	Post	5	3.97	0.34	79.42	3.51	46.84**	p<.001

Note.**p<.01

Table 3: The comparison between posttest and criteria standard of presentation ability classroom research proposal of science student teachers by using inquiry-based learning activity

N	Test	Score	Mean	S.D.	%	criteria standard	t-test	
18	Post	5	3.90	0.39	78.00	3.51	40.83**	p<.001

Note.**p<.01

Table 4: The comparison between posttest and criteria standard of attitude toward

N	Test	Score	Mean	S.D.	%	criteria standard	t-test	
18	Post	5	4.16	0.25	83.24	3.51	66.53**	p<.001

inquiry-based learning activity of science student teachers'

Note.**p<.01

Finding and Discussion

The research finding indicate that science student teachers' learning through the inquiry-based learning activity have an understanding about doing research in the classroom higher than before. The student's writing ability and presentation ability of classroom research proposal, and attitude toward the inquiry-based learning were at the "good" level after they participated in the series of the learning activities. For discussion, the inquiry-based learning activity on classroom research proposal covered learning standards, contents, learning objectives, measurement and evaluation, inquiry-based learning instructional activities, instructional media, and records after using the inquiry-based learning activity. From activities, it is found that a learner develop question about doing research in the classroom that they are hungry to answer. They can learn from it is their own unique way. Teacher is on hand to guide research and answer questions, but don't do the work for them and allows them to see the teacher as a trusted resource as they uncover details on their own. The learning activity is focused on developing learners' competency with practices of doing and thinking about "How to do classroom research or how to write and present classroom research proposal to other people to understand". Students use evidence to develop explanations. The activities of inquiry-based learning could encourage learners to learn from activities with their peers in the classroom. It was found that most of the learners enjoyed the activity and cooperated with the activities as well. Moreover, they could explain objectives to make classroom research, research methodology, data collection, data analysis, statistics, and using results of classroom research to development science teaching in classroom. They showed maneuverable and presentation easy to understand. Additionally, they understand "why we do classroom research" and "classroom research essay to do". So inquiry-based learning activity often involve students developing their own questions to investigate based on intriguing observed phenomena, working in group to plan and carry out an investigation to answer their question, and communicating their results with classmates to give everyone a fuller understanding (e.g., Institute for Inquiry at the Exploratorium, 2014) These activities are learner-centered, focused on what the learners do rather than on what the teacher does, but they are also not a free-for-all; the teacher has specific learning goals for students and can nudge and guide student towards those as the activity progresses. However, the inquiry-based learning activity

has some limitations. If the teacher does not have sufficient understanding of the process begin with curiosity; when you cannot activate a student's interest and curiosity in a particular subject, you'll not see real engagement and mastery of the topic at hand. In addition, the inquiry-based learning activity of this study takes a long time because there are 6 steps in the learning procedure in which students must spend time searching for answers. As a result, teacher should make clear lesson plans to achieve precise time management before teaching.

Conclusion

Based on the findings obtained in this study, it can be said that the students who have been educated by inquiry-based learning activity on understanding, writing ability, and presentation ability of classroom research proposal, and attitude toward inquiry-based learning activities have become more successful with criteria standard at good level. The inquiry-based learning activity aspires to engage students in an authentic discovery process. From a pedagogical perspective, the complex process is divided into smaller, logically connected units that guide students and draw attention to important features of thinking. In this study inquiry-based learning activity are 6 steps adapted from Kath Murdoch (http://blog.istp.org/the-inquiry-learning-cycle) as Tuning In, Finding Out, Sorting Out, Going Further, Making Conclusions, and Taking Action that engage students in knowledge-building by bringing them together frequently to share thinking and discuss the big ideas of an inquiry. However, inquiry-based learning is not a prescribed, uniform linear process. Connections between the phases may vary depending on the context. Therefore, inquiry-based learning is discussed to guide teachers how to organization of activities as appropriate for help students acquire knowledge and gain necessary skills to achieve in the future. Classroom teachers should consider how to prepare learning environment in which students will be active in accordance with their characteristics and the present these environments to students. Further, the teachers will have to revisit initial theories and ideas about questions and reflect on the way that the initial understanding differs from current understanding

Acknowledgements

The authors wish to thank 1) Professor Dr. Jeffrey Clinton Nash and Associate professor Varanya Jeeravipoolvarn who kindness to verify my document, 2) Faculty of Education and Rajabhat Udon Thani University that support about travel and registration, and 3) My family and my friend who give encouragement in this work.

References

Alberta Learning. (2004). Inquiry-based Learning. http://www.learnalberta.ca/content/kes/pdf/or_ws_tea_inst_02_inqbased.pdf

Allwright, D., & Bailey, K. M. (1991). Focus on the Language Learner. Cambridge: Cambridge University Press. Open Journal of Modern Linguistics, Vol.7 No.2, April 20, 2017.

Baumann, J.F. & Duffy A.M. (2001). Teacher-researcher methodology: Themes, variations, and possibilities. The Reading Teacher, 54 (6).

Bondy S. (2001). Warming up to classroom research in a professional development school. Contemporary Education, 72(1), 8-6.

Clive Millar. 2016. A Practical Guide to Classroom Research. Northwich: Critical Publishing.

Denscombe, M. (2003). The Good Research Guide, Maidenhead, McGraw-Hill.

Ferlazzo, L., Boss, S. (2015) Different ways of learning by doing. http://blogs.edweek.org/teachers/classroom_qa_with_larry_ferlazzo/2015/03/response_different_ways_of_learning_by_doing.html

Hunter, L., Metevier A.J., Seagroves S., Kluger-Bell B., Inquiry Framwork and Indicators, (Santa Cruz, USA: Institute for Scientist & Engineer Educators, 2014) http://isee.ucsc.edu/projects/inquiry-frameworrk.html

Institute for Inquiry, What is Inquiry?, (San Francisco, USA: Exploratorium, 2014) http://www.exploratorium.edu/ifi/about/philosophy.html

Janelle Cox. All About Inquiry-Based Learning. https://www.teachhub.com/all-about-inquiry-based-learning)

Joe Exline. (2004). What is inquiry-based learning?. https://www.thirteen.org/edonline/concept2class/inquiry/index.html

John, W.Best & James, V.Kahn, (2005). Research in Education. 9th Edition, India: Rahul Graphic Arts.

Julian Hermida. (2001). How to do classroom action research. http://www.julianhermida.com/algoma/scotlactionresearch.htm

Kuklthau, C.C., Maniotes, L.K., & Caspari, A.K. (2007). Guided inquiry Learning in the 21st century. Westport, CT & London: Libraries Unlimited.

Lee Watanabe-Crockett. (2019). What is Inquiry-Based Learning?. https://www.wabisabilearning.com/blog/inquiry-based-learning-meaning)

McKernan, J. (1996), Curriculum Action Research. London: Kogan Page

Millett, A. (1999), Action research in the Classroom: What is to be done? keynote address to the Primary Geography Research Conference: Action Research in the Classroom, 4 March.

Nunan, D, & Bailey, K.M. (2009). Exploring second language classroom research. Boston:

Heinle.University of Toronto, Ontario Institute for Studies in Education (OISE). Robertson program for inquiry-based teaching in math and science. Retrieved March 12, 2013, from: http://oise.utoronto.ca/robertson/index.html

Contact email: banana_659@hotmail.com

Alignment of Learning Competencies, Instruction and Summative Assessment in Mathematics 10: A Basis for Curriculum Implementation Monitoring Plan

Deo Pasion Urbano, Saint Mary's University, Philippines

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract
Using mixed method design, this study determined the extent of the implementation of the curriculum guide in Mathematics 10 classes, the alignment of learning competencies, instruction and summative assessment, identified the challenges encountered by the teachers, and developed a Curriculum Implementation Monitoring Plan. Questionnaires and documents of teachers from eight public schools in the Division of Nueva Vizcaya during School Year 2017-2018 were utilized. The results revealed that the teachers fell short of the required time in implementing learning competencies of the K to 12 Mathematics 10 curriculum guide due to disruptions of classes, although interventions were done to address the issues. Among the learning competenceis in Mathematics 10, the least implemented were the learning competencies of statistics and probability concepts where teachers spent about one-third of the required time. Most of the instruction and summative assessment employed and administered by the teachers were aligned with learning competencies. The most pressing challenge in the implementation of learning competencies was time while in the delivery of instruction was students' skills and knowledge and the most pressing concern in developing summative assessments was related to students' attitude. A Curriculum Implementation Monitoring Plan was proposed to oversee the implementation of K to 12 Basic Education Curriculum towards development projects.

Key Words: curriculum guide, curriculum implementation, development projects, disruptions, interventions

iafor
The International Academic Forum
www.iafor.org

In the teaching-learning process, assessment for students occurs at the beginning while on the side of the teacher it occurs at the end (Biggs, 2003). Through assessments, the lives of children together with their families and the level of the educational system can be influenced by the learner performance exerted. That is, if assessment is properly utilized, it serves as powerful catalyst to improve the instruction and curriculum which in turn advances the teaching-learning process (Stern & Ahlgren, 2002).

Assessment is a general term which includes all methods to gather information about learner's ability, knowledge, understanding, attitudes and motivation through quizzes, portfolio, test, oral questioning, etc. (Ioannou-Georgiou, 2012; Rathburn, 2018). The National Achievement Test (NAT) of the Philippine Republic and the Trends in International Mathematics and Science Studies (TIMSS) are some of the particular assessments conducted to measure the students' learning. The Bureau of Educational Assessment under the Department of Education (DepEd) administers the standardized NAT to measure acquired learning in the major subjects taught in schools to provide empirical information on the achievement level of grades six, ten and twelve learners to serve as benchmark in making policies, planning curriculum and administering the educational system of the country (DepEd, 2013).

The results of the NAT, TIMSS and Global Competitiveness Report of the World Economic Forum for the past years showed a low performance in the major subjects especially in the field of mathematics (CIIT CAT, 2015; dela Cruz, 2017). Out of 25 participating countries in the TIMSS 2003, the Philippines ranked 23rd in fourth grade Mathematics, while eighth grade Mathematics ranked 34th out of 38 participating countries (Gonzales, Guzman, Partelow, Pahlke, Jocelyn, Kastberg & Williams, 2004). The average score for the NAT results for School Years 2005 to 2012 for the high school students ranged from 45.55% to 51.41% while for the elementary pupils, it ranged from 54.49% to 68.88% (Ordinario, 2013; UNESCO, 2015). Furthermore, the Global Competitiveness Report of the World Economic Forum shows that the Philippines ranked 67th out of the 140 participating countries for the quality of math and science education in 2015-2016 while in the following year, the country ranked 79th out of 138 countries (dela Cruz, 2017). Accordinlgy, results from the achievement tests provide a clear picture about the performance level and quality of education in the country and allows for a useful perspective to enhance, develop or modify the educational system for a higher performance.

These results and other findings on dissatisfaction with the different schooling systems in diverse educational institutions propelled the world into many changes which called for adjustments and modifications in teaching practices (Sebate, 2011). Aiming to improve the quality of teaching and learning in educational institutions, policymakers in the industrialized countries like Netherlands continually involve themselves in reform endeavors (Uhlenbeck, Verloop and Beijaard, 2002). Moreover, the development of the standards of teacher, learner performances and assessment systems is the most significant aim of educational and curriculum reform (Sebate, 2011).

Legalized by Republic Act No. 10533, also known as the "*Enhanced Basic Education Act of 2013"*, the Philippine Republic revolutionized the country's educational system by shifting from Basic Education Curriculum (BEC) 2002 and Secondary Education

Curriculum (SEC) 2010 to the K to 12 Curriculum in order to ensure the mastery of knowledge and skills towards the attainment of intended learning outcomes (Lazaro, 2017; Okabe, 2013).

The current K to 12 curriculum of the Philippines was established from the theory of discovery learning by Gerome Bruner which espouses that students learn best by building on their existing knowledge. It is also based on Bruner's model of spiral curriculum that zeroes in on the understanding that human cognition progressed in a step-by-step method of learning, which depends on environmental interaction and experience to form intuition and knowledge.

With the curriculum shift in the Philippines, the implementation of K to 12 curriculum according to Okabe (2013) is admirable and timely but beleaguered by socioeconomic and pedagogical problems. Moreover, as Valisno (2012) elucidated, it is equivalently crucial that there is full alignment of the attitude and knowledge to the learners and the commitment of school heads together with teachers in showing their dedication towards quality education when the revised curriculum is to be implemented.

Along with the curriculum shift, studies aiming to advance teaching practices and reviews on the learning competencies towards the attainment of 21st century skills were done. Among the studies conducted to determine the 21st century skills of the students in the Philippines was done by Aguila (2015) which focused on learning and innovation skills, and information, media and technology skills as essential components of instruction.

Instruction is the transfer of learning from one person to another and is a purposeful direction of the learning process that is vital for education (Huitt, 2003). Instruction is linked with level of skills of the students that can be assessed in learning competencies. As emphasized by Wing Institute (2019) providing students with quality instructional delivery aligned to skill level of each learner is the key in maintaining a desirable classroom climate. Applied skills, understanding, knowledge and attitude that enable learners to successfully demonstrate them in every activity in the educational context is called competency (Gosselin, 2017; DO 8, s. 2015).

In connection with learning competency and instruction to assessment, Biggs (1996) recognized that assessment can enhance learning only when there is constructive alignment between learning, instruction and assessment. Likewise, it was accentuated in the study of Stern and Ahlgren (2002) and Webb, Webb, and Herman, (2006) that the key to today's standards-based reform is the alignment of the assessment that serves as both a lever and a measure to reform efforts and standards. In particular, it is ideal that both of the assessment and curriculum should be aligned with precise worthwhile learning goals or competencies. Moreover, it is important that curriculum guidelines with indicated prescribed learning competencies are implemented by the teachers through the tasks they employ with their learners. They must evaluate the constraints and affordances of their instructional materials to select those tasks that are most appropriate for their learners which may be done through alignment (Edenfield, 2010; Howson, Keitel & Kilpatrick, 1981). Biggs (2003) also emphasized that the activities of the learner and the teacher are both directed towards the same goal if curriculum that encompasses learning competencies is reflected in the assessment. Moreover, ensuring assessments and instructional strategies to be aligned

with the intended learning outcomes is vital when designing a learning experience, program or a course (Maki, 2011; Biggs and Tang, 2011).

Similarly, Spady (1994) in his book *Outcomes-Based Education* (OBE) he noted that a clear picture of desired outcomes is the starting point of curriculum, instruction and assessment planning and implementation where every component must match or align with targeted outcomes to improve and make the existing system more effective. It was also identified by SEDL (2005) that aligning curriculum, instruction and assessment with the standards is important for accomplishing clearly defined learning "ends" to strengthen and to improve an educational program, and if there is disconnection among these components, learners' achievement will not be evident. Additionally, alignment of the assessment systems with the curriculum that encompasses learning competencies and instruction through an analysis of standards, guidelines, policies, and practices in educational institutions will provide guidance to the educational sector from the national down to districts in developing or refining the educational system (Martone & Sireci, 2009; La Marca, Redfield, & Winter, 2000).

The low performances of the learners in NAT, TIMSS, and Global Competitiveness of World Economic Forum, the claims of Biggs (1996), SEDL (2005), Okabe (2005), Valisno (2012) and the anticipation of Scheerens (2016) that a better alignment precedes a better student performance encouraged the researcher to look into the alignment of the learning competencies, instruction and summative assessment as well as the challenges in the teaching-learning process as this is necessary to develop the goals for reform in the educational system. This will improve the learning experience and the success of the learners like in attaining a higher score or better performance in achievement tests.

The K to 12 curriculum features the philosophy that a learner learns best at repeated experience of concepts by continuously returning to the basic ideas added to new concepts in a subject. The K-12 curriculum is spiral where Mathematics 7 to 10 has the same key stage standard where concepts in Mathematics 7, 8 and 9 are integrated in Mathematics 10, thus the study focused on Mathematics 10.

Scheerens, Ehren, Sleegers and Leeuw (2012) and the Organization for Economic Cooperation and Development (OECD, 2005) noted that in all types of assessments, emphasis remains on summative assessment that measures what learners have learned through examination and testing as practiced in the Philippines through NAT, hence, this focus on summative assessment.

According to Bala (2017), regular monitoring and evaluation help the teachers improve their teaching performances and address their issues and concerns, hence the researcher also proposed an instrument to be used in monitoring the implementation of the curriculum.

Conclusion

In the light of the salient results of this study, the following conclusions were drawn:
1. The Grade 10 Mathematics teachers fell short of the required time in teaching the learning competencies of patterns and algebra, geometry, and statistics and probability except for one teacher who exceeded the required time in teaching geometry topics.

1.2 Teachers did not meet the required time in the implementation of learning competencies due to the disruption of classes, their instructional procedures and deviations from the memorandum mandated by the Department of Education (DepEd). Interventions were done to teach all learning competencies of the K to 12 Mathematics 10 Curriculum Guide. The least implemented concept of Mathematics 10 was the statistics part.

1.3 There was an incongruity in the required time for implementing the learning competencies of the subject with the school calendar and the expected number of class days mandated by the DepEd. This might be the reason why teachers merged learning competencies during instruction to enable them to teach all competencies that compromised the teaching-learning process. Also, teachers did not implement the learning competencies of Mathematics 10 fully which may explain why learners did not attain the knowledge prerequisite to the next lessons or grade level. This in turn requires other teachers in the next grade to again teach these competencies resulting to not meeting the required time.

2. Teachers delivered instruction and developed summative assessments that were appropriate to measure majority of the desired learning competencies and develop the students' skills but there were instances of inappropriateness among learning competencies, instruction and summative assessment.

2.1 Most of the instructions employed by the teachers were aligned with the learning competencies. Teachers used learning resources that were issued by the government through DepEd and other non-government bodies or individuals. Additionally, teachers practiced the integration of information, communications and technology (ICT) materials in teaching the lessons.

2.2 At least, half of teachers employed instructions that were aligned with the administered summative assessment to measure the learning competencies and to develop the learners' skills. Teachers designed most of their assessments considered appropriate in developing the students' mathematical skills in patterns and algebra, geometry and statistics and probability. There were instances that learning competencies were not taught but such competencies were included in the summative assessment. Also, some learning competencies were taught but no items of the same were found in the administered summative assessment.

2.3 At least 50% of the learning competencies of the Mathematics 10 Curriculum Guide were aligned with the instruction employed and the summative assessment administered by the teachers.

2.4 There were instructions that were inappropriate for learning competencies which may clarify the challenges identified by the teachers like the undeveloped skills and abilities in mathematics of the students. This might have been a factor for the low performance level of students in the tests.

2.5 There were learning competencies not included in the summative assessment thus, failing to evaluate the students' learning in the concepts. There were items reflected in the assessment even when these were not taught hence, the need for teachers to attend development programs in test construction.

3. Mathematics 10 teachers experienced pressing issues and concerns in the implementation of learning competencies, delivery instruction and developing summative assessment that challenged them in teaching the lessons and evaluating students' learning. These challenges need to be addressed as these might be the

reasons why teachers did not meet the required time of teaching the contents of the subject.

3.1 The challenges encountered by Mathematics 10 teachers in the implementation of learning competencies, delivery of instruction and developing summative assessment were categorized into various themes.

3.2 Challenges encountered by the teachers in the ***implementation of learning competencies*** were sorted into five various themes such as (a) time; (b) disruptions; (c) curriculum offered; and (d) flow of the learning competencies. Among these challenges, it was revealed that *too many learning competencies to cover in every quarter* was the most pressing.

3.3 The challenges faced by the teachers in the ***delivery of instruction*** were classified into ten various themes: (a) learning materials; (b) attitude or behaviour of students; (c) students' skills or knowledge; (d) class disruptions; (e) time; (f) psychological differences; (g) medium of instruction; (h) remedial; (i) practicality of lessons; and (d) class size. Of these ten themes, the most pressing issue was the *students' skills and knowledge* specifically on the *mastery of prerequisite subject and skills of students that were not fully attained.*

3.4 Challenges encountered by the teachers in ***developing summative assessment*** were grouped into three themes: (a) attitudes of the students; (b) test construction; and (c) student capability. The most pressing challenge faced by the teachers were related to *the students' attitudes*, particularly their *study habits.*

Acknowledgement

Every challenging work needs perseverance as well as guidance especially from those who are very close to our hearts who have been affected in every way possible by this quest. This humble work would not have been possible without the priceless contribution of people with good intentions. Therefore, the researcher would like to give due acknowledgement to:

Department of Science and Technology – Science Education Institute, for giving the researcher a chance to be one of the first batch of scholars under the Science and Technology Regional Alliance for National Development (STRAND) project. The researcher is very fortunate for the support extended in its completion

Researcher's parents, Mr. Danilo Melchor Urbano and Mrs. Leonida Banaga Pasion – Urbano, for their unconditional love and strong support system, for their sacrifices and encouragement for him to be patient in developing the study, for their warmth and for always reminding him of how worthy he is as their son;

His siblings and two God-sent angels in the family, Ate Marietta, Ate Maribeth, Ading Florida and Ading Eloisa, for supporting the researcher in this educational pursuit. His niece Marie Alyssa and nephew Mark Alex, his best cheerleaders, for making "tito-kuya" smile that helped lighten the heavy loads;

All the special persons who supported him in any way in the duration of the study. The researcher would have liked to name and individually thank each one of you; his love for you all can never be quantified;

Above all, to our Almighty Father who guided and strengthened the researcher especially during the times that he felt hopeless and in doubt about the completion of this paper. He is his strongest pillar, the source of his inspiration, wisdom, knowledge and understanding. Undeniably amazed of how he was able to accomplish all the Herculean tasks, with all humility, the researcher gives the highest credit to Him.

References

Aguila, M. (2015). 21st century skills of Nueva Vizcaya State University Bambang Campus, Philippines. *Asia Pacific Journal of Education, Arts and Sciences*. Retrieved from https://www.apjeas.apjmr.com

Bala, C. (2017). *Problems encountered in K to 12 curriculum.* Department of Education -Nueva Ecija. Retrieved from www.deped-ne.net

Biggs, J. (1996). *Enhancing teaching through constructive alignment.* The International Journal of Higher Education Research, 32 (3), 347-364.

Biggs, J. (2003). *Aligning teaching and assessing to course objectives.* Teaching and Learning in Higher Education: New Trends and Innovations. University of Aveiro
Biggs, J. & Tang, C. (2011). *Teaching for quality learning at university.* McGraw-Hill Education (UK)

Bruner, J. (1960). *The process of education.* Oxford Cajigal, R. & Mantuano, M. (2014). *Assessment of learning 2*. Adriana Publishing Co., Inc.

CIIT College of Arts and Technology. (2015). *Six reasons why the Philippines should switch to k-12 curriculum*. Retrieved from http://www.k12philippines.com/six-reasons-why-the-philippines-should-switch-to-k-12-curriculum

Dela Cruz, M. J., (2017). *Science ed and a thinking society.* Retrieved from https:/m.inquirer.net/opinion/102324.

Department of Education Order 8, s. 2015. *Policy guidelines on classroom assessment for k to 12 basic education program.* Retrieved from http://deped.gov.ph/index.php/issuances/deped-orders/2015

Edenfield, K. (2010). *Mathematics teachers' use of instructional materials while implementing a new currriculum.* The University of Georgia

Gonzales, P., Guzman, J., Partelow, L., Pahlke, E., Jocelyn, L., Kastberg, D. & Williams, T. (2004). *Highlights from the trends in international mathematics and science study (timss) 2003* (NCES 2005-05) U.S. Department of Education, National Center for Education Statistics, Washington, DC: US Government Printing Office.

Gosselin, D. (2017). *Competencies and learning outcomes.* Retrieved from https://serc.carleton.edu/integrate/programs/workforceprep/competencies_and_LO.html

Howson, G., Kietel, C. & Kilpatrick, J. (1981). *Curriculum development in mathematics.* Cambridge, MA: Cambridge Univeristy Press

Huitt, W. (2003). *Classroom instruction. Educational psychology interactive.* Valdosta, GA: Valdosta State University. Retrieved from http://www.edpsycinteractive.org/topics/instruct/instruct.html

Ioannou-Georgiou, S. (2003). *Assessing young learners.* Resource Book for Teachers. Oxford La Marca, P., Redfield, D. & Winter, P. (2000). *Alignment of standards and assessments: A theoretical and empirical study of methods for alignment.* Retrieved from http://www.researchgate.net/publication/255575863

Lazaro, L. (2017). *Appraising the implementation of the spiral progression approach in teaching junior high school mathematics.* (Published Thesis) Saint Mary's University, Bayombong, Nueva Vizcaya.

Maki, P. (2010). *Assessing for learning.* 2nd edition. Sterling, VA: Stylus.

Martone, A. & Sireci, S. (2009). *Evaluating alignment between curriculum, assessment, and instruction.* Review of Educational Research. Pennsylvania State University. Retrieved from http://rer.aera.net

OECD (2005). *Formative assessment: Improving learning in secondary classroom*. Paris: OECD Publishing

Okabe, M. (2013). *Where does Philippine education go? The "K to 12" program and reform of Philippine basic education.* Research Promotion Department, Institute of Developing Economies. Retrieved from https://www.ide.go.jp

Ordinario, C. (2013). *"Low NAT scores may worsen under k to 12".* Retrieved from https://www.rappler.com/nation/24205-low-nat-scores-may-worsen-under-k-12

Rathburn, S. (2018). *The quiz: a quick assessment tool.* Retrieved from https://tilt.colostate.edu/teachingResources/tips/tip.cfm?tipid=69

Republic Act No. 10533, (2013). *Enhanced basic education act of 2013.* Retrieved from https://www.officialgazette.gov.ph/2013/09/04/irr-republic-act-no-10533/

Scheerens, J. (2016). Opportunity to Learn, Instructional Alignment and Test Preparation: A Research Review. In closing the gaps? *Differential accountability and effectiveness as a road to school improvement*. Oslo: University of Oslo.

Scheerens, J., Ehren, M., Sleegers, P., & Leeuw, R. (2012). *OECD Review on evaluation and assessment frameworks for improving school outcomes.* Paris: OECD Publishing

Sebate, P. (2011). *The role of teacher understanding in aligning assessment with teaching and learning in setswana home language.* University of South Africa.

Southwest Educational Development Laboratory (SEDL). (2005). *What is instructional leadership and why is it important?* The Newsletter for Reading First Program. Retrieved from http://www.sedl.org

Spady, W. (1994). *Outcome-based education: Critical issues and answers.* American Association of School Administrators, Arlington, Va. Retrieved from https://files.ed.gov

Stern, L. & Ahlgren, A. (2002). Analysis of students' assessments in middle school curriculum materials: Aiming precisely at benchmarks and standard. *Journal of Research in Science Teaching*, 39 (9), 889-910. Wiley Periodicals, Inc.

Uhlenbeck, A., Verloop, N. & Beijaard, D. (2002). *Requirements for an assessment procedure for beginning teachers: Implications from recent theories on teaching and assessment*. Leiden University, Leiden, The Netherlands.

United Nation Educational Scientific and Cultural Organization (UNESCO) (2015). *Education for all 2015 national review report: Philippines.* Retrieved from www.unesdoc.unesco.org/images/0023/002303/230331e.pdf

Valisno, M. (2012). *The nation's journey to greatness: Looking beyond five decades of Philippine education.* Fund for Assistance to Private Education. Makati City

Walle, J., Lovin, L., Karp, K., & Bay-Williams, J. (2014). *Teaching student-centered mathematics Developmentally appropriate instruction for grades pre-k-2 Second Edition.* Pearson Education Incorporated. United States of America.

Webb, Noreen, Herman, J. & Webb, Norman (2006). *Alignment of mathematics state-level standards and assessments: The role of reviewer agreement*. National Center for Research on Evaluation, Standards, and Student Testing (CRESST) Center for the Study of Evaluation (CSE), Graduate School of Education & Information Studies University of California, Los Angeles.

Wing Institute (2019). *Effective instruction overview.* Retrieved from https://www.winginstitute.org/effective-instruction-overview

Contact email: urbanodeo@gmail.com
oednoisaponabru@gmail.com

Measuring the Computational Thinking Abilities and Surveying Freshman Students' Opinions on Teaching and Learning Styles

Virawan Amnouychokanant, King Mongkut's University, Thailand
Surapon Boonlue, King Mongkut's University, Thailand
Saranya Chuathong, King Mongkut's University, Thailand
Kuntida Thamwipat, King Mongkut's University, Thailand

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract
Computational Thinking (CT) is a key skill in the 21st century that everyone needs, rather than just being a programming skill used only by programmers. To develop students' systematic thinking and analytical abilities, we should add computational thinking to them. A sample group consisted of 89 freshman students attending the Department of Educational Communications and Technology of King Mongkut's University of Technology Thonburi, Thailand. They completed a Computational Thinking Test (CTt) and a students' opinions survey. Reliabilities as internal consistency of the CTt, measured by Cronbach's Alfa is $\propto = 0.79$. This test is aimed at measuring the students' CT abilities. The CTt had 20 multiple choice items and consisted of four components: Decomposition, Pattern Recognition, Abstraction, and Algorithm Design. The results revealed both males and females have equally average scores; however, their scores were lower than that of the criterion; consequently, they should be cultivated CT. The results from the students' opinions survey indicated that most respondents liked working with friends and learning by doing; in addition, they also admired an instructor who always applied problems in real life to teach them and combined Face-to-Face and Online Learning. These results can be applied in future research related to instructional design based on students' opinions and preferences.

Keywords: Computational Thinking Test, Decomposition, Pattern Recognition, Abstraction, Algorithm Design, Students' opinions

Introduction

Computational Thinking (CT) is one of the daily life skills that everyone needs rather than being a programing skill used only by computer scientists. Especially learning in the 21st century that focuses on learning skills and innovation (3R4C) (Wing, 2006). CT can be combined with various subjects, but many teachers are still using programming languages to teach it (Lye & Koh, 2014; Zhong, Wang, Chen, & Li, 2016). CT is not only applied in computer programming but can also be used in mathematics and biology to train students' logical concepts, CT, and problem-solving skills (Hsu, Chang, and Hung, 2018).

CT is made up of four components, including decomposition, pattern recognition, abstraction, and algorithm design. The problem that we found from the literature review, was few studies designed Computational Thinking Test (CTt) that focused on four components as mentioned above. Most CTt always measured using block-based programming (Topalli & Cagiltay, 2018; Marcelino et al., 2018; Basogain et al., 2018; Erol and Kurt, 2017; Kazimoglu et al., 2012; Baytak & Land, 2011). In this study, we designed CTt that measured four components (decomposition, pattern recognition, abstraction, and algorithm design). We designed CTt that focused on thinking process rather than programming skill. CT is not a set of concepts for programming; it is a way of thinking that is sharpened through practice. It can be stated that CT is explaining and interpreting the world as a complex of information processes. (Denning & Tedre, 2019). After designing and validation CTt, we surveyed freshman students' opinions on learning styles, characteristics of favorite teachers, and characteristics of unacceptable teachers for the benefit of future researches in using it as data for instructional design based on students' opinions and preferences.

1.1 CT definitions

CT is a set of problem-solving processes that relate to expressing problems and solutions in ways that a computer could execute (Wing, 2014). It involves the mental skills and practices for designing computations that get computers to work for us and interpreting the world as a complex of information processes (Denning & Tedre, 2019). We clarified definitions of CT, as shown in Table 1.

CT is …	CT is not …	Resource
• thinking at multiple levels of abstraction • a way of human thinking to solve problems • a combination of mathematics and engineering thinking that can apply with various subjects • a fundamental skill in daily life that everyone needs	• the development process of programming language • copying the computer's thinking mode • a skill that only applied in computer programming • a programming skill used only by computer scientists	Wing, 2006; Grover & Pea, 2013; Hsu, Chang, and Hung, 2018

Table 1: The definitions of CT

1.2 The components of computational thinking

Computational Thinking is made up of four components, including decomposition, pattern recognition, abstraction, and algorithm design. The details of each component can be explained as follows:

Decomposition is breaking down data, processes, or problems into smaller. This makes complex problems easier to solve and large systems easier to design. To give you an idea, if you would like to understand how the motorbike system works, you can separate it into parts, then observe and test the function of each component will be easier to understand than analyze from large complex systems (Kilpeläinen, 2010; Hsu, Chang, and Hung, 2018).

Pattern Recognition is observing patterns, trends, and regularities in data. To illustrate, each cat has common characteristics. They have eyes, tails, fur, like to eat fish and meow. These common characteristics are called "pattern" when we can describe a cat, we will explain the characteristics of other cats in the same style itself (Hsu, Chang, and Hung, 2018).

Abstraction is focusing on the important information and ignoring unnecessary details. Although each cat will be in common. But it has different characteristics eventually. For example, some have different eyes and fur colors, some have short tails, some have long tails, some have fluffy hair, and some have no hair. An abstraction will screen the characteristics of each cat because the irrelevant details do not help us to explain the elementary characteristics of each cat. The process of screening out the irrelevant and focusing on a model helps us to solve problems which are called a model. When we have an abstract idea, it will give us a clearer idea model (Grover & Pea, 2013; Hsu, Chang, and Hung, 2018).

Algorithm Design is creating an order series of instructions for solving similar problems or for performing a task. When we need to order a computer to perform certain tasks, we need to write a program to execute the respective steps. Planning for a computer to meet our needs is called "algorithmic thinking" How well a computer will perform depends on how the algorithm works. The algorithm design is also useful for calculation, data processing, and various automated systems (Grover & Pea, 2013; Hsu, Chang, and Hung, 2018).

1.3 Computational thinking assessment

The measurement of computational thinking focuses on a thinking process rather than memorization. Primary school students were evaluated from classroom activities and behavioral observations such as explaining how to create a task as a set of step-by-step instructions to measure the results of a simple algorithm (Bers, 2010; Jovanov, Stankov, Mihova, Ristov, & Gusev, 2016; Kwon, Kim, Shim, & Lee, 2012). While high school students and university students were evaluated using a test that has focused on systematic thinking and problem-solving skill. The concepts of Computer Programming are transferred through storytelling or free exercises available on Code.org. There is no method to evaluate the effectiveness of these approaches; therefore, their validity is still unclear (Kalelioğlu, 2015). From the literature review, most studies in the past focused on block-based programming. Werner, Denner, Campe, & Kawamoto (2012) tried to use Alice to measure the understanding of abstraction, conditional logic, algorithmic thinking and other CT concepts while several studies used Scratch as a tool to measure CT abilities (Resnick et al., 2009;

Maloney, Resnick, Rusk, Silverman, & Eastmong, 2010; Clark, Rogers, Spradling, & Pais, 2013).

2. Method

2.1 Participants

A sample group consisted of 89 freshman students (30.34% male and 69.66% female) attending the Department of Educational Communications and Technology of King Mongkut's University of Technology Thonburi, Thailand. All participants enrolled in the Innovation in Educational Technology and Mass Communication course.

2.2 Computational Thinking Test

Before designing the Computational Thinking Test (CTt), we studied the other CTt such as the Talent Search Computational Challenge of Bebras Organization and the Test for Measuring Basic Programming Abilities (Mühling, Ruf, & Hubwieser, 2015). We created a Computational Thinking Test with a length of 30 multiple choice items. After a content validation process through three experts' judgement, the final one was consisted of 20 items length. The CTt was built on the following principles:

- Aim: CTt aims to measure the students' CT abilities.
- Target population: CTt is specifically designed for students in higher education.
- Instrument type: multiple choice test with 4 answer options.
- Length and estimated completion time: 20 items; 30 mins.
- Computational concept addressed: each item addresses one or more of the following four computational thinking components (Decomposition, Pattern Recognition, Abstraction, and Algorithm Design). The example of CTt items translated into English is shown in Figures 1-2; with their details below.

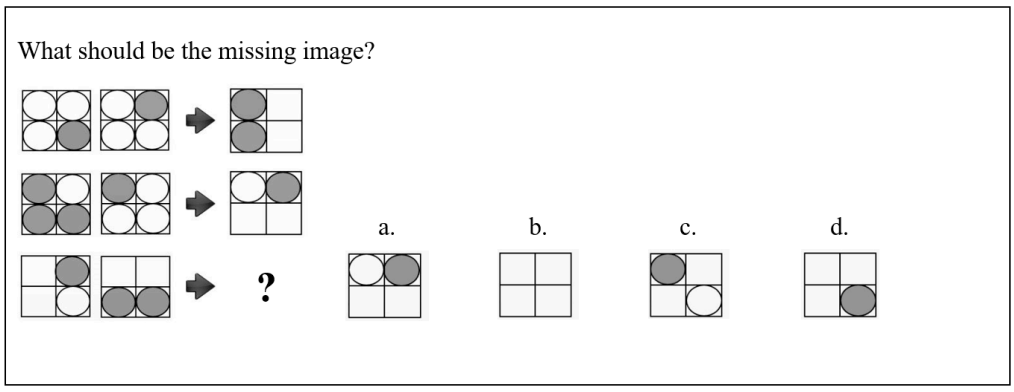
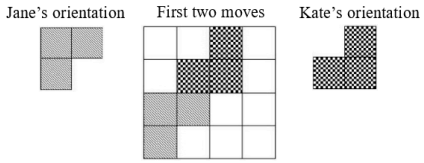


Figure 1: item 4; pattern recognition

Jane and Kate are playing L-Game on a 4x4 board. They take turns placing L-shaped pieces. Every piece placed by Jane and Kate is oriented as shown below and no two pieces overlap. Pieces cannot be moved after they are placed. A player loses the game when it is their turn, but it is not possible to place a piece according to the rules above.

An example where Jane goes first is shown below. In this example, Jane can win the game by placing a piece in the bottom-right corner.



Question: Jane has nine possible first moves.
In how many of them is she guaranteed to win
no matter how pieces are placed in following turns?

a. 1 b. 2 c. 3 d. 4

Figure 2: item 16; decomposition and abstraction

2.3 Procedure

After the validation process of CTt, we have used 20 questions to create an online test in the Google form for easy access to the samples. A sample of 89 people will be divided into two groups to do the tests in the computer room. The test-takers can use the computers in the computer room or use their mobile phones depending on the convenience of each person. During the test, two invigilators walked around to prevent cheating. After collecting data from the sample, we are going to analyze the data with SPSS software version 18.0.

3. Results and discussion

3.1 The qualities of CTt

Table 2 shows the validation of CTt. The Index of Item-Objective Congruence (IOC) along the 20 items is 0.87; that can be interpreted as good content validity (Sireci, 2007; Sireci, 1998). While Reliabilities as internal consistency of the CTt, measured by Cronbach's Alfa is 0.79 that can be considered as high reliabilities (Nunnally & Bernstein, 1994; Roman-Gonzalez, Perez-Gonzalez, & Jimenez-Fernandez, 2017). The average along the 20 items is p = 0.59 (medium difficulty); ranging from p = 0.26 (item 3; quite difficult) to p = 0.76 (item 11; quite easy).

Summarizing, it can be stated that the CTt has an appropriate degree of difficulty (medium) for the sample group and has characteristics of a good test (Cronbach & Thorndike, 1971; Messick, 1980). The qualities of CTt, as shown in Table 2.

The qualities	CTt value	Criterion
Index of Item-Objective Congruence (IOC)	0.87	IOC > 0.5
Cronbach's alpha (α) reliability coefficient	0.79	Ranging between 0 and 1.00 0.71-1.00; high reliability 0.41-0.70; medium reliability 0.21-0.40; low reliability 0.00-0.20; very low reliability
Difficulty (P)	0.59	P = 0.2 to 0.8; acceptable P > 0.80; too easy P < 0.2; too difficult

Table 2: The qualities of CTt

3.2 CT abilities

The results of the four components of CT abilities are shown in Table 3. The component that has the highest mean is abstraction and the component that has the lowest mean is algorithm design. Therefore, the students should be developed algorithm design, which is considered the most important component of the CT. This is because an algorithm can be defined as a step by step procedure for achieving any goals and it is used to find the best possible way of solving a problem, which makes it easy to understand for anyone even without programming knowledge (Hsu, Chang, & Hung, 2018; Barr & Stephenson, 2011; Grover & Pea, 2013).

From Table 4 indicates gender differences that affect CT abilities. There is no statistically significant difference between genders ($p > 0.01$), but their scores are bottom level of CT (Table 5). Therefore, they need to be developed computational thinking to have problem-solving skills in a systematic way and create something new (Günbatar, 2019; Hsu, Chang, & Hung, 2018; Lye & Koh, 2014).

CT Components	Gender	n	Mean	S.D.	t
Decomposition	Male	27	2.80	.698	-0.296
	Female	62	2.90	.751	
Pattern Recognition	Male	27	2.90	.903	-0.427
	Female	62	3.03	.800	
Abstraction	Male	27	4.72	.320	0.611
	Female	62	4.60	.371	
Algorithm Design	Male	27	1.92	.989	-0.620
	Female	62	2.15	.998	

Table 3: The results of each CT component

CT Components	Gender	n	Mean	S.D.	t	Sig
Overall	Male	27	11.86	1.423	-0.602	0.549
	Female	62	12.10	1.690		

Table 4: The results of overall CT components

Mean	Interpretation
18.00-20.00	Excellent
15.00-17.99	Good
12.00-14.99	Acceptable
10.00-11.99	Passed
below 10	Failed

Table 5: Criteria for CT abilities levels

3.3 Freshman students' opinions on teaching and learning styles

After measuring the computational thinking abilities, we surveyed freshman students' opinions on teaching and learning styles. According to Table 6, most respondents liked to be engaged with others, work on teams, and ask peers for feedback in order to learn and they preferred learning by doing and hands-on experience. In addition, we surveyed the students' opinions of the characteristics of teachers they liked and disliked. Most students liked the teacher who applied problem in real life to teach them and combined face to face and online learning. On the contrary, most students disliked the teachers who unchanged their teaching styles and methods.

Hence, it can be assumed that the students who like collaborative learning, sharing their ideas, and carrying out projects together, tend to be enjoy with learning, more attentive and active which leads to the creation of effective learning, consistent with past studies (Chen, Li, & Chen, 2020; Hernández-Sellés, Muñoz-Carril, & González-Sanmamed; 2019).

Topic	Items	n	%
1. Learning styles	1.1 Prefer seeing the info and to visualize the relationships between ideas	22	13.7
	1.2 Prefer hearing info rather than reading it or seeing it displayed visually	16	9.9
	1.3 Prefer reading and writing rather than hearing or seeing images	12	7.5
	1.4 Prefer learning by doing and hands-on experience	47	29.2
	1.5 Like to be engaged with others, work on teams, and ask peers for feedback	45	27.9
	1.6 Prefer to be alone when learning something and study by yourself	19	11.8
2. Characteristics of favorite teachers	2.1 Set high expectations for all students	18	6.1
	2.2 Focus on shared decision-making and teamwork	37	12.5
	2.3 Apply problems in real life to teach	53	18.0
	2.4 Combine Face-to-Face and Online Learning	42	14.2
	2.5 Deep Knowledge of and Passion for the Subject Matter	31	10.5
	2.6 Encourage discussion in the classroom	27	9.2
	2.7 Excellent preparation and organization skills	23	7.8
	2.8 Excellent Communication Skills	29	9.8
	2.9 Using a variety of teaching style and innovative approaches	35	11.9
3. Characteristics of unacceptable teachers	3.1 Lack of classroom management	24	17.0
	3.2 Lack of content knowledge	30	21.3
	3.3 Lack of organizational skills	22	15.6
	3.4 Routine and unchanging in their teaching styles and methods	39	27.7
	3.5 Unable to diagnose learning problems	26	18.4

*Respondents could select more than one answer in each topic.

Table 6: Results of surveying freshman students' opinions on teaching and learning styles

3.4 Instructional design

We collected the teaching techniques that match the students' preferences, as shown in Table 7. There are many reasons why the student-centered approach is important. It addresses all the essential needs of students and places high emphasis on relevance and engagement of students. It provides the opportunity to foster collaborative

learning. The instructor should design activities in such a way that students have to involve their peers in completing the tasks. This approach not only encourages collaboration but also fosters teamwork (Barak & Assal, 2018). Using games and challenges develops problem-solving skills, which is useful when students encounter similar problems in real life (Argaw et al., 2017).

Students' preferences	Teaching techniques	Advantages for students	References
Prefer learning by hands-on experience and apply problems in real life	• Project-based learning • Problem-based learning • Inquiry Method • Case study method	• Allows students to experiment with trial and error, learn from their mistakes, and understand the potential gaps between theory and practice	(Akınoğlu & Tandoğan, 2007; Abdelkhalek, Hussein, Gibbs, & Hamdy, 2010; Beaumont, Savin-Baden, Conradi, & Poulton, 2014; Argaw, Haile, Ayalew, & Kuma, 2017)
Like to be engaged with others, work on teams, and ask peers for feedback	• Project-based learning • Team Assisted Individualization (TAI) • Student Teams Achievement Divisions (STAD) • Team-Games-Tournaments (TGT) • Think pair share • Group Investigation • Team Word-Webbing • Discussion Method	• Enhances communication and social skills • Increases diversity of solutions and alternatives • Encourage students to find knowledge by themselves. • Allows students to work towards a common goal	(Barak & Assal, 2018; Crismond, 2011; Kolmos, 1996; Savery, 2006; Zadok & Voloch, 2018; Rogers, Cross, Gresalfi, Trauth-Nare, & Buck, 2011)

Combine Face-to-Face and Online Learning	Blended learning • Outside-In • Supplemental • Inside-Out • Flex • Lab Rotation • Station Rotation • Individual Rotation • Self-Directed • Project-Based • Remote • Flipped Classroom • Mastery-Based	• Enables students to learn at their own pace • Provides student autonomy • Incorporates a variety of instructional approaches	(Basogain, Olabe, Olabe, & Rico, 2018; Li, He, Yuan, Chen, & Sun, 2019; Yigsaw et al., 2019; Akçayır & Akçayır, 2018; AlJarrah, Thomas, & Shehab, 2018)

Table 7: The details of the teaching techniques that match the students' preferences

4. Limitations and future studies

The limitations of this study include its sample. This sample only includes freshman students from the Department of Educational Communications and Technology of King Mongkut's University of Technology Thonburi and is not a representative sample of Thailand and other regions.

Future studies may collect more data from other levels of various universities. Surveying students' opinions on teaching and learning styles may not adequate for the instructional design to improve CT of students. Future studies may collect data about teaching tools that can support in CT courses.

5. Conclusion

A Computational Thinking Test (CTt) was developed and validated. The CTt has an appropriate degree of difficulty (medium; $p = 0.59$) for the sample group and has characteristics of a good test (Cronbach & Thorndike, 1971; Messick, 1980). Four components of CT were measured in this test. A sample group consisted of 89 freshman students attending the Department of Educational Communications and Technology of King Mongkut's University of Technology Thonburi, Thailand. The results of freshman students' CT abilities showed that their scores are bottom level of CT. Therefore, they need to develop computational thinking in order to have problem-solving skills in a systematic way (Günbatar, 2019; Hsu, Chang, & Hung, 2018; Lye & Koh, 2014). After measuring the computational thinking abilities, we surveyed freshman students' opinions on teaching and learning styles. The results indicated that most students liked working with friends and learning by doing; besides, they also liked an instructor who applied problems in real life to teach them and combined face to face and online learning. These results can be applied in future research related to instructional design based on students' opinions and preferences. Examples of Teaching techniques that match the students' preferences such as Problem-based Learning, Project-based Learning, and Blended Learning, etc.

Acknowledgements

The authors would like to express sincere thanks to Petchra Pra Jom Klao Ph.D. Research Scholarship for supporting the expense of research.

References

Abdelkhalek N., Hussein A., Gibbs T., Hamdy H. (2010). Using team-based learning to prepare medical students for future problem-based learning. *Med Teach 32*(2), 123–129.

Akınoğlu, O., & Tandoğan, R.Ö. (2007). The effects of problem-based active learning in science. education on students' academic achievement, attitude and concept learning. *Eurasia Journal of Mathematics, Science and Technology Education, 3*(1), 71–81.

Akçayır, G., & Akçayır, M. (2018). The flipped classroom: A review of its advantages and challenges. *Computers & Education, 126*, 334–345.

AlJarrah, A., Thomas, M. K., & Shehab, M. (2018). Investigating temporal access in a flipped classroom: Procrastination persists. *International Journal of Educational Technology in Higher Education, 15*(1), 1.

Almanasreh, E., Moles, R., & Chen, T. F. (2019). Evaluation of methods used for estimating content validity.

Argaw, A. S., Haile, B. B., Ayalew, B. T., & Kuma, S. G. (2017). The effect of problem-based learning (PBL) instruction on students' motivation and problem-solving skills of physics. *Eurasia Journal of Mathematics, Science and Technology Education, 13*(3), 857–871.

Barak, M. & Assal, M. (2018). Robotics and STEM learning: students' achievements in assignments according to the P3 task taxonomy – practice, problem solving, and projects. *International Journal of Technology and Design Education, 28*(1), 121-144.

Barr, V., & Stephenson, C. (2011). Bringing computational thinking to K-12: What is involved and what is the role of the computer science education community? *Acm Inroads, 2*(1), 48–54.

Basogain, X., Olabe, M. A., Olabe, J. C., & Rico, M. J. (2018). Computational Thinking in pre-university Blended Learning classrooms. *Computers in Human Behavior, 80*, 412-419.

Baytak, A., & Land, S. M. (2011). An investigation of the artifacts and process of constructing computers games about environmental science in a fifth grade classroom. *Education Tech Research Dev, 59*, 765-782.

Beaumont, C., Savin-Baden, M., Conradi, E., & Poulton, T. (2014). Evaluating a second life problem-based learning (PBL) demonstrator project: What can we learn? *Interactive Learning Environments, 22*(1), 125–141.

Bers, M. U. (2010). The TangibleK Robotics program: Applied computational thinking for young children. *Early Childhood Research & Practice, 12*(2), 2.

Chen, C.-M., Li, M.-C., & Chen, T.-C. (2020). A web-based collaborative reading annotation system with gamification mechanisms to improve reading performance. *Computers & Education, 144*.

Clark, J., Rogers, M. P., Spradling, C., & Pais, J. (2013). What, no canoes? Lessons learned while hosting a Scratch summer camp. *Journal of Computing Sciences in Colleges, 28*, 204-210.

Crismond, D. P. (2011). "Scaffolding strategies for integrating engineering design and scientific inquiry in project-based learning environments", in Barak, M. and Hacker, M. (Eds), *Fostering Human Development Through Engineering and Technology Education,* 235-255.

Cronbach, L. J., & Thorndike, R. L. (1971). Educational measurement. *Test validation*, 443-507.

Denning, P. J., & Tedre, M. (2019). *Computational Thinking*. United States: MIT Press Ltd.

Erol, O., & Kurt, A. A. (2017). The effects of teaching programming with scratch on pre-service information technology teachers' motivation and achievement. *Computers in Human Behavior, 77*, 11-18.

Grover, S., & Pea, R. (2013). Computational thinking in K–12 a review of the state of the field. *Educational Researcher, 42*(1), 38–43.

Günbatar, M. S. (2019). Computational thinking within the context of professional life: Change in CT skill from the viewpoint of teachers. *Education and Information Technologies, 24*(5), 2629-2652.

Hernández-Sellés, N., Muñoz-Carril, P.-C., & González-Sanmamed, M. (2019). Computer-supported collaborative learning: An analysis of the relationship between interaction, emotional support and online collaborative tools. *Computers & Education, 138*, 1-12.

Hsu, T. C., Chang, S. C., & Hung, Y. T. (2018). How to learn and how to teach computational thinking: Suggestions based on a review of the literature. *Computers & Education, 126*, 299-300.

Jovanov, M., Stankov, E., Mihova, M., Ristov, S., & Gusev, M. (2016). Computing as a new compulsory subject in the Macedonian primary schools curriculum. *Global engineering education conference (EDUCON), 2016 IEEE* (pp. 680–685). IEEE. Kalelioğlu, F. (2015). A new way of teaching programming skills to K-12 students: Code. Org. *Computers in Human Behavior, 52*, 200–210.

Kazimoglu, C., Kiernan, M., Bacon, L., & MacKinnon, L. (2012). Learning Programming at the Computational Thinking Level via Digital Game-Play. *Procedia Computer Science, 9, 522-531.*

Kilpeläinen, P. (2010). Do all roads lead to Rome? (Or reductions for dummy travelers). *Computer Science Education, 20*(3), 181–199.

Kolmos, A. (1996), Reflections on project work and problem-based learning, *European Journal of Engineering Education, 21*(2), 141-148.

Kwon, D. Y., Kim, H. S., Shim, J. K., & Lee, W. G. (2012). Algorithmic bricks: a tangible robot programming tool for elementary school students. Education. *IEEE Transactions, 55*(4), 474-479.

Li, C., He, J., Yuan, C., Chen, B., & Sun, Z. (2019). The effects of blended learning on knowledge, skills, and satisfaction in nursing students: A meta-analysis. *Nurse Education Today, 82*, 51-57.

Lye, S. Y., & Koh, J. H. L. (2014). Review on teaching and learning of computational thinking through programming: What is next for K-12? *Computers in Human Behavior, 41*, 51–61.

Maloney, J., Resnick, M., Rusk, N., Silverman, B., & Eastmong, E. (2010). The Scratch programming language and environment. *ACM Transactions on Computing Education, 10*(4), 1-15.

Marcelino, M. J., Pessoa, T., Vieira, C., Salvador, T., & Mendes, A. J. (2018). Learning Computational Thinking and scratch at distance. *Computers in Human Behavior, 80, 470-477.*

Messick, S. (1980). Test validity and the ethics of assessment. *American Psychologist, 35*(11), 1012-1027.

Mühling, A., Ruf, A., & Hubwieser, P. (2015). Design and first results of a psychometric test for measuring basic programming abilities. In *Proceedings of the 10th workshop in primary and secondary computing education,* 2-10.

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York: McGraw-Hill.

Resnick, M., Maloney, J., Hernandez, A. M., Rusk, N., Eastmond, E., Brennan, K., et al. (2009). Scratch: programming for all. *Communications of the ACM, 52*(11). Retrieved from http://web.media.mit.edu/~mres/papers/Scratch-CACM-final.pdf.

Rogers, M. A. P., Cross, D. I., Gresalfi, M. S., Trauth-Nare, A. E. & Buck, G. A. (2011). First year implementation of a project-based learning approach: the need for addressing teachers' orientations in the era of reform, *International Journal of Science and Mathematics Education, 9*(4), 893-917.

Roman-Gonzalez, M., Perez-Gonzalez, J.-C., & Jimenez-Fernandez, C. (2017). Which cognitive abilities underlie computational thinking? Criterion validity of the Computational Thinking Test. *Computers in Human Behavior, 72*, 678-691.
Savery, J. R. (2006). Overview of problem-based learning: definitions and distinctions, *Interdisciplinary Journal of Problem-Based Learning, 1*(1).

Sireci, S. G. (1998). The construct of content validity. *Social Indicators Research, 45*(1), 83-117.
Sireci, S. G. (2007). On validity theory and test validation. *Educational Researcher, 36*(8), 477-481.
Topalli, D., & Cagiltay, N. E. (2018). Improving programming skills in engineering education through problem-based game projects with Scratch. *Computers & Education, 120, 64-74.*

Wing, J. M. (2014). Computational Thinking Benefits Society. *40th Anniversary Blog of Social Issues in Computing.*

Yigsaw, M., Tebekaw, Y., Kim, Y.-M., Kols, A., Ayalew, F., & Eyassu, G. (2019). Comparing the effectiveness of a blended learning approach with a conventional learning approach for basic emergency obstetric and newborn care training in Ethiopia. *Midwifery, 78*, 42-49.

Zadok, Y. and Voloch, N. (2018). Applying PBL to teaching robotics, *International Journal of Innovation and Learning, 24*(2), 138-151.

Addressing Mathematics Anxiety of Grade 5 Students through Modules and Strategies and Its Effect to Student Achievement

Ma. Edilyn Dimapilis Chiao, Elizabeth Seton School, Philippines

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract
The study sought to address mathematics anxiety among grade 5 students of Elizabeth Seton School – Las Piñas Campus by defining its relationship with student achievement, facilitating modules and strategies, and determining its effect to student achievement. The study examined the mathematics anxiety levels of 267 grade 5 respondents and utilized an instrument adopted from Sierbers (2015). The study also examined whether mathematics anxiety modules and strategies improve student achievement and analyzed using Statistical Package for the Social Sciences (SPSS). A paired t-test for the difference between means of student achievement and Pearson–r for the relationship of mathematics anxiety with student achievement were used as statistical analyses to measure significance. The result of the study indicated that there is MEDIUM – HIGH mathematics anxiety levels among the respondents which after implementation of mathematics modules and strategies decreased to LOW – MEDIUM mathematics anxiety level. The result also showed there was a statistically strong relationship between mathematics anxiety and students achievement. Students who have high mathematics anxiety tend to have low mathematics achievement. Furthermore, the t-test showed that the mean difference between student achievements is significant in two out of eight sections only in grade 5 students. This implies that mathematics anxiety modules and strategies were effective in selected sections. Based on the findings of this study, it is worth noting that mathematics anxiety affects student achievement.

Keywords: mathematics anxiety, student achievement, anxiety levels, modules, strategies, addressing anxiety

iafor
The International Academic Forum
www.iafor.org

It has been defined that "Math anxiety is a feeling of tension, apprehension, or fear that interferes with math performance" (Ashcraft, 2002, p.181). Mathematics anxiety can begin as early as the fourth grade and peaks in middle school and high school.

Since Mathematics Anxiety has been a well-known research topic for numerous years, there is a need of continuously research on the topic of math anxiety (Smith, 2004). With this, the study aimed to determine the levels of mathematics anxiety, its relationship of with student achievement and the effects of mathematics anxiety modules in mathematics at Elizabeth Seton School – Las Piñas Campus. The aspects looked into modules and strategies in improving students' achievement where research data were collected using an instrument (questionnaire) adopted from Sierbers (2015) and statistically analyzed.

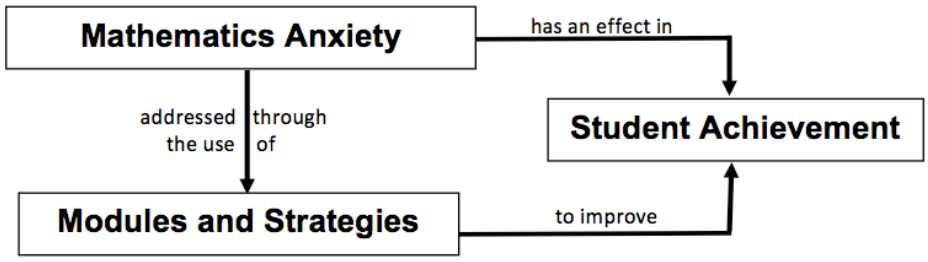


Figure 1: Conceptual Framework

Parallel to this study were the past work of Gough (1954) and Dreger and Aiken (1957) that noted mathematical performance is influenced by nonintellectual factors. Gough (1954) defined Mathemaphobia as a fear in the presence of mathematics that creates a negative attitude. Dreger and Aiken (1957) investigated the idea that math attitude scores made a significantly predict achievement in mathematics. Richardson and Suinn (1972) created a 98-item Mathematics Anxiety Rating Scale (MARS), which is the most used instrument to measure math anxiety. Suinn, Edie, Nicoletti, and Spinelli (1972) used the MARS in a study to measure math anxiety in students. Wigfield and Meece (1988) used a Student Attitude Questionnaire (SAQ) with students in 6th through 12th grade. The questionnaire in their study assessed the levels of math anxiety and student's beliefs concerning mathematics. Hembree (1990) studied the nature, effects, and relief of mathematics anxiety concluding that mathematics anxiety depresses performance.

This study used descriptive and quasi-experimental quantitative research as a type of methodology, which involved collection of data needed to determine the mathematics anxiety levels among grade 5 students, its relationship with student achievement, and the effects of Mathematics Anxiety Modules as an intervention in addressing mathematics anxiety. Using this research design, data were gathered and summarized through numerical reports and tables using measures of central tendency, variation and correlation.

Conclusion

Data gathered showed that after implementation of Mathematics Anxiety Modules and Strategies, the levels for math anxiety of students decreased. This implied through

Mathematics Anxiety Modules, mathematics anxiety be likely to decrease through several interventions. This was parallel to the study of Buchler (2013) which showed that students who participated in the classes with instruction on the three research-based anxiety-reducing strategies experienced positive change in their ability to control anxiety during anxiety-producing situations by using one or more of the strategies. Also, data gathered that changes in students' anxiety towards mathematics were significantly correlated with changes in the mean grade.

The study revealed the following findings:

1. The students' anxiety level in mathematics was MEDIUM to HIGH before the implementation of Mathematics Anxiety Modules and LOW to MEDIUM after the implementation. Students' anxiety in mathematics decreased as they become more aware on understanding mathematics anxiety. The more positive the students' perception towards mathematics, the higher the mathematics grades of the students.

2. There is a there a significant relationship between the levels of mathematics anxiety and the student achievement.

3. There is a significant difference/improvement in the mathematics anxiety and student achievement (as measured by the mathematics grade) of grade 5 students after the implementation of modules and strategies.

Acknowledgement

First and foremost the researcher would like to express her sincerest gratitude to the Almighty for His gift of wisdom, persistence and patience.

The researcher also acknowledges the contribution of the following:
Mr. Iean F. Castellano, Ms. Corazon D. Huvalla, Dr. Delia C. Navaza and Ms. Teresita F. Religioso, for the supervision, vital contribution, and constructive feedback and evaluation for the betterment of this paper.

Dr. Roberto T. Borromeo, Ms. Catherine Ann S. Rosero, Ms. Frances Ann A. Samson, and Mr. Ferdinand V. Alido, for their insightful leadership and encouragement and years of mentorship.

The Mathematics Department Faculty, Ms. Michelle B. Aquino and Ms. Arleth T. Follero, for their support and willingness to share their sharp-witted thoughts, which were essential for this research.

Elizabeth Seton School and the whole school community, for providing the opportunity to conduct this research and for the utmost support and understanding.

Most importantly, the researcher acknowledges and gives gratitude to her husband, Engr. Robert A. Chiao for the never-ending trust, unconditional love and continual support. He has been the researcher's inspiration together with their children Nicholas and Nichole for whom this study has been dedicated. The researcher also wants to thank her parents, Eduardo and Erlinda Dimapilis, for raising her with thorough

understanding the value of education and hardwork. The researcher will always be grateful, indebted, and inspired by their love.

References

Ashcraft, M. H., & Kirk, E. P. (2001). *The relationships among working memory, math anxiety, and performance*. Journal of Experimental Psychology. General, 130(2), 224-237.

Boaler, J. (2008). *What's math got to do with it?: Helping children learn to love their most* Buchler, Robin K., (2013). *"Anxiety-Reducing Strategies in the Classroom"* Dissertations. Paper 188.

Dreger, R. M, & Aiken, L. R. (1957). Identification of number anxiety. Journal of Educational Psychology, 47, 344-351.

Gough, M. F. (1954). Mathemaphobia: Causes and treatments. Clearing House, 28, 290-294.

Hembree, R. (1990). The nature, effects, and relief of mathematics anxiety. Journal for Research in Mathematics Education, 21, 33-46.

Kesici, Ş., & ErdoĞan, A. (2010). Mathematics anxiety according to middle school students' achievement motivation and social comparison. Education, 131(1), 54-63.

Mashayekha, M., Hashemi. (2011). *Recognizing , Reducing and Copying with Test Anxiety : Causes , Solutions and Recommendations.* www.sciencedirect.com

Meece, J. L., & Wigfield A., & Eccles, J. (1990). Predictors of math anxiety and its influence on young adolescents' course enrollment intentions and performance in mathematics. Journal of Educational Psychology, 82(1), 60-70.

Reys R. E., Lindquist M. N., Lambdin D. V., & Smith N. L. (2007). *Helping children learn mathematics.* Hoboken, NJ: John Wiley & Sons, Inc.

Richardson, F. C. & Suinn, R. M. (1972). The mathematics anxiety rating scale: Psychometric data. Journal of Counseling Psychology, 19(6), 551-554.

Rockoff, J. E., Jacob, B. A. (2011) *Organizing Schools to Improve Student Achievement: Start Times, Grade Configurations, and Teacher Assignments* (Research Paper). The Hamilton Project, Washington, DC.

Scarpello, G. (2007). Helping students get past math anxiety. Techniques: Connecting Education & Careers, 82(6), 34-35.

Siebers, W. M. (2015, May). *The relationship between math anxiety and student achievement of middle school students*. Retrieved from https://mountainscholar.org/bitstream/handle/10217/166940/Siebers_colostate_0053A_12903.pdf?sequence=1

Smith, Megan R. (2004). *Math Anxiety: Causes, Effects, and Preventative Measures Senior Honors Theses*. *255*. Retrieved from https://digitalcommons.liberty.edu/honors/255

Smith-Nelson, Courtney Kathleen, "Practicing Positive Coping Strategies For Managing Math Anxiety In A Secondary Mathematics Classroom" (2016). MSU Graduate Theses. Paper 2977

Suinn, R. M., Edie, C. A., Nicoletti, J., & Spinelli, P. (1972). The MARS, a measure of mathematics anxiety: Psychometric data. Journal of Clinical Psychology, 28(3), 373-375.

Suinn, R. M., & Edwards, R. (1982). *The measurement of mathematics anxiety: The mathematics anxiety rating scale for adolescents MARS-A*. Journal of Clinical Psychology, 38(3), 576-580.

Tobias, S. (1993). *Overcoming math anxiety*, (Rev. and expanded.). New York, NY: W.W. Norton.

Vitasari, Prima, et. al. (2010). *The Use of Study Anxiety Intervention in Reducing Anxiety to Improve Academic Performance among University Students.* International Journal of Psychological Studies, Malaysia

Contact email: chiao.edilyn@ess.edu.ph

Identifying Variables in English as Medium of Instruction: A Trajectory Equifinality Modeling Analysis of Two English Teachers in Japan

Mitsuyo Toya, University of the Ryukyus, Japan

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract
The Japanese Ministry of Education, Culture, Sports, Science, and Technology (MEXT) has long tried to change the medium of instruction (MI) for secondary school English education. Released in March 2018, a new course of study states that junior high school English should be taught in English. This reinforces an earlier announcement for MI in senior high schools in 2008, so now English teachers in all Japanese public schools are under increasing pressure to speak English exclusively during class. This is referred to as the "All English" policy. However, these calls for an "All English" classroom have not necessarily been welcomed or accepted by instructors. Indeed, fewer than 20% of teachers use English more than 75% in class at both junior and senior high schools (MEXT, 2019). Senior high school teachers are undoubtedly able to conduct English-only lessons, so why do they refuse to use more English in class? In order to qualitatively clarify variables that govern teachers' decisions on the use of English, two female English teachers, each with approximately ten years of experience, were interviewed separately regarding their teaching career. The resulting data were analyzed using the Trajectory Equifinality Model (Valsiner & Sato, 2006). The results revealed that anticipated learning difficulties among students inhibited the teachers' use of English and that this was influenced by the fact that they had been assigned to schools with varied proficiency levels. It was also found that a coincidental encounter with a model teacher served as the Obligatory Passage Point along the way to their achieving the Equifinality Point of using English as a MI.

Keywords: English medium instruction (EMI), language teacher training, trajectory equifinality modeling (TEM)

iafor
The International Academic Forum
www.iafor.org

Introduction

Japanese English education at primary and secondary schools has often been criticized for being ineffective. A survey conducted by CEFR-J Research Group reported in 2012 that 80% of Japanese students placed at a CEFR A level, 20% at B level, and that only very few achieved C level proficiency (Negishi, 2012). According to the annual survey by MEXT for 2018, 42% of junior high school students attained CEFR A1 level and above while 40% of senior high school students achieved CEFR A2 level and above, which seems to be close to Negishi's observation (MEXT, 2019). Relatedly, The Japan Times reported disappointing results from a 2019 survey by a Swiss international company called Education First, in which Japan is ranked the fifty-third among 100 countries researched and therefore regarded as a "low" proficiency country (The Japan Times, 11/9/2019).

With this quandary in mind, the Japanese Ministry of Education, Culture, Sports, Science, and Technology (MEXT) has tried to improve students' English proficiency by working on five policies proposed by the Expert Meeting Committee for English Education Reform in 2014. One of the proposed policies states that English teachers at the secondary level (i.e., junior high school for Grades 7-9 and senior high school for Grades 10-12) should improve their own English proficiency in order to better teach English in English (TEE) in class. The Course of Study released in 2008 exhorts senior high school English teachers to employ English-medium instruction (EMI) exclusively, though grammar instruction is allowed to be in Japanese.

Nevertheless, it is taking a long time for senior high school English teachers to accept EMI. The use of English in their classes is reported to be far from 100%, even in the December 2018 survey results (MEXT, 2019). It was found that only 20% or fewer teachers use English more that 75% of their instructional time and the figure is no better in junior high schools. Similar to the 2008 EMI directive at the senior high school level, the new Course of Study issued in March 2018 for junior high schools states that English classes should basically be taught in English, which may hopefully accelerate the use of English among teachers.

Still, considering the state of senior high school teachers' use of English during the ten years since the "All English" policy was promulgated, it appears that similar implementation at a junior high level will not be so easy. The MEXT response to this situation has been to extend support with a goal of improving teachers' English proficiency. The assumption is that teachers avoid using English in class due to their limited English language proficiency. However, in the annual report of 2018, 68.2% of senior high school English teachers nation-wide attained CEFR B2 level or above, which is a 2.8% increase from the previous year. In Okinawa, where I teach, the figure is 77.4%. This confirms my personal observation regarding the proficiency level of English-majoring students at my university, who receive a junior and/or senior high school teaching license at the time of graduation. They all receive EMI and practice teaching English in English as part of the teaching license curriculum. A majority of future teachers we train go overseas for six months to one year in order to improve their English skills and experience foreign culture, and this trend has existed for many years. Even when it was less common for college students to study abroad, I have observed during my 20 years of teaching that many of those who became local teachers were the ones who had opportunities to study in the U.S. In sum, based on

available statistics and my many years of training and observing student and in-service teachers, I do not think that English proficiency is a primary factor impeding the use of EMI in junior and senior high schools in Japan.

Yet if English proficiency is not an issue, why are English teachers with sufficient English proficiency to teach EMI seemingly resisting implementation of the "All English" policy? From the beginning of their teacher training, aspiring English teachers are frequently reminded about the importance for them to provide an enriched English environment for their students. Like many Japanese universities, our teaching methodology courses at the University of the Ryukyus train students to conduct "All English" classes. We also teach second language acquisition theories that include ample evidence that TEE promotes language acquisition. To be fair to in-service teachers, especially veterans, curricular support was weaker 10-15 years ago. In days gone by lecturers promoted EMI in teaching methodology classes, but theoretical background information and practical training were seemingly insufficient. Still, the pressure to teach English in English has been steadily mounting since the release of the Course of Study policy in 2008, but as yet it has achieved rather meager results. Why? The quest to answer this has led me to investigate by tracing two of my undergraduate teacher's license alumni's career trajectories with an aim to clarifying the factors that encourage or inhibit their use of English for instruction.

In order to conduct this investigation, I used a relatively new approach based on the Trajectory Equifinality Model (TEM). TEM originated in the field of social psychology and has not yet been applied in the field of language teacher education to the best of my knowledge. It has been described as "a new methodology for depicting a diversity of the course of human life" (Sato, Yasuda, Kido, Takada, & Valsiner, 2006, p.255), and has been applied in nursery studies to analyze the caretakers' transformation and child development via peer interaction, in career education studies to clarify the course of decision making, and studies for transformation of a special-education teacher through professional experience (Yasuda, Nameda, Fukuda, & Sato, 2015). TEM employs qualitative analysis to develop a systematic examination of participants' histories within a chronological framework that considers potential and actual circumstances of the participants, as well as how these came to be so.

The purpose of this study is thus to use TEM to identify the effective and ineffective events and experiences of two in-service Japanese teachers of English that influenced them to ultimately begin using EMI.

Research Questions

My research questions are as follows:

1. What are the reasons for using or not using English as a medium of instruction (EMI) in English classrooms in Japan?
2. If English teachers are to overcome the difficulty of introducing EMI in their classrooms, what experiences/events/trainings are likely to promote such behavior?

Method

Participants

Two English teachers from a public senior high school in Okinawa prefecture were interviewed for this study. Both were alumni of the university where I teach. Both teach mostly in English except during exam preparation classes and in-class grammar instruction. Both were teaching at one of the top public senior high schools in Okinawa at the time when the interviews for this study took place. Both are female and both received their teaching licenses by completing the University of the Ryukyus' teaching licensing curriculum as English majors, though I taught them at different times because they were of separate academic years.

Participant A graduated in 2007 and became tenured in 2010 after completing a M.A. in TESL in the U.S. Before earning a permanent position, she worked as a non-tenured teacher for two and half years. Participant B graduated in 2005 and passed the teaching exam in the same year. She was employed as a tenured teacher in 2006; however, the first year was more like a probation period as it was customary at that time to delay the tenure of newly-hired teachers for a year. Thus, Participant A and B had different routes to becoming teachers, although both happened to work in the same school at the time of this study.

Instruments and Procedure

I conducted a one-to-one, face-to-face interview with each of the participants. It was a semi-structured interview with open-ended questions regarding their current use of English in class and reasons behind that use, career and teaching history after graduation, what they remember about teacher training from their undergraduate days, and what in-service trainings influenced their current use of EMI. The interviews were approximately 60 and 90 minutes long respectively. With consent for the research agreed, the interviews were recorded and transcribed. The data were then analyzed using the Trajectory Equifinality Model (TEM).

Analysis

In TEM analysis, researchers map the interviewee's history in a chart. The TEM chart will include an arrow to indicate "irreversible time" and important events/experiences will be allocated there. It should be noted that TEM employs a notion called "bifurcation points" at every identified event. That is, any event could have resulted in alternative outcomes if the participant made an alternative decision. The final stage achieved by the interviewee is called "equifinality point" and if a different decision was made at any bifurcation point, the final stage could have not been achieved. This analysis then enables researchers to determine the most crucial event(s) as the "obligatory passage point." The TEM chart also incorporates external factors that enhanced or suppressed the possibility of achieving the equifinality point. (Sato, 2017; Sato, Yasuda, Kido, Takada, & Valsiner, 2006; Sato, Mori, & Valsiner, 2016; Yasuda, et al., 2015; Yasuda & Sato, 2012). TEM therefore enables for a systematic qualitative analysis of the academic and career trajectories of two teachers and how they came to adopt EMI.

Results

Figures 1 and 2 show the TEM charts for Participant A and B respectively. In both figures, the arrow from the left to the right at the bottom of figure indicates the flow of irreversible time. Real events are indicated in rectangles with solid lines while alternative (unhappened, theoretically possible) events are shown in rectangles with dotted lines. In these figures, a right-end rectangle at the top indicates the equifinality point where the participants realize EMI is necessary for their students and begin to teach English mostly in English. The rectangles in dotted lines at the right-end are theoretically possible outcomes if the participant had taken other routes. Accordingly, rectangles for more positive events are placed toward the top of the figure, while negative ones are toward the bottom.

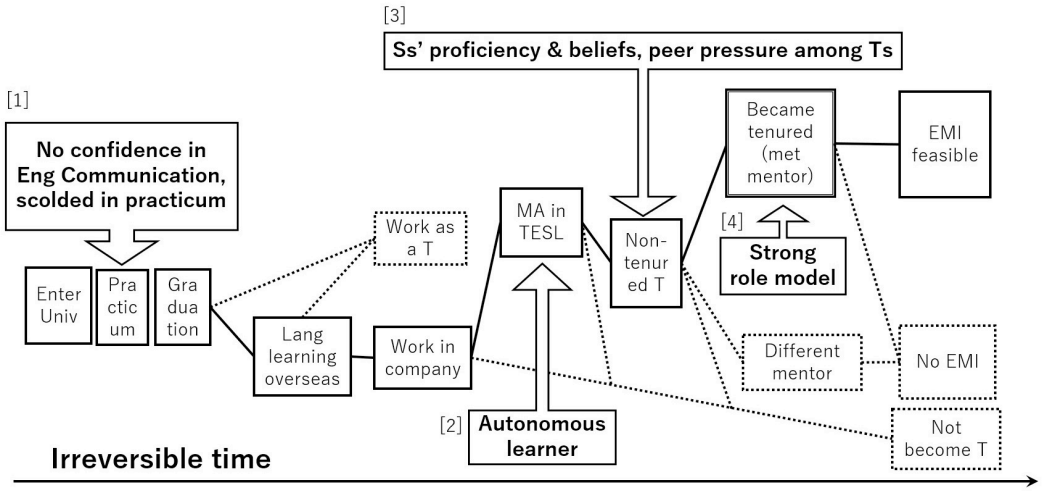


Figure 1: TEM chart for Participant A

By analyzing the interview results using TEM, clear paths of progression become obvious for each participant. Participant A met a mentor as she became tenured, which was her obligatory passage point. These experiences anticipate when she began using EMI as much as possible, her equifinality point (Figure 1). Similarly, the obligatory passage point for Participant B was when she met a mentor as a tenured teacher. After meeting a strong role model, she too began to employ EMI in her class as much as possible (Figure 2).

English teachers in Japan often experience difficulties when they try to teach English in English because they are not always convinced that TEE is beneficial for their students. Both interview results indicated that, depending on their estimation of the students' proficiency, these teachers sometimes held negative views about the feasibility of EMI. Especially in public senior high schools in Japan, the levels of students' English ability varies widely from one school to another, and many schools experience hardships trying to keep students motivated to study. In such schools, it is often believed that it would be impossible to teach English in English. Since senior high school teachers are generally relocated every five years, both participants claimed that they observed ups and downs in students' English levels as they were assigned to and moved from one school to the other. The events of school relocation were thus an influential environmental factor for the participating teachers.

Regardless of different school environments then, how did these interviewees manage to begin using more English in their classes? Both participants had experiences of almost giving up EMI when confronted with Japanese classroom reality. For example, Participant A felt that she could practice what she learned in the master's program in the U.S. when she first started teaching in a public school. However, the schools where she initially worked did not have very high academic levels. Although she was deeply impressed by the idea of "autonomous learners" as shown by [2] in Figure 1 and wanted to teach using such an approach, she was discouraged by the students' English proficiency and learner beliefs. Therefore, she could not effectively implement learner autonomy as part of her teaching ([3] in Figure 1). She also mentioned in the interview that it was additionally difficult to pursue her ideal teaching style while the other senior/peer teachers retained traditional teaching styles.

Yet when she passed the teaching exam and became tenured, she was assigned to a very experienced mentor teacher who became a strong role model. Participant A said that the mentor was "very proficient in both English and teaching skills" and she had also received her M.A. from an American University. She provided Participant A with numerous ideas about how to teach Japanese students in English. Significantly, Participant A who had almost given up the idea of teaching in English, discovered practical ideas to implement her ideals when she observed the mentor's classroom activities and when she received advice from the mentor. This motivated her to teach more in the manner she learned in her M.A. TESL program and led her to use as much English as possible in later years. This event can therefore be regarded as Participant A's obligatory passage point because without this experience, she would not have begun teaching English in English. A strong role model teacher ([4] in Figure 1) was the enabling factor that inspired her to become the teacher she is today—an effective TEE practitioner.

My TEM analysis of Participant B' interview revealed that her obligatory passage point was also when she obtained a tenured position and was supervised by a mentor. Her assigned mentor was an experienced male teacher, but rather unusual because he kept talking in English even when he was advising her. Participant B even wondered whether he was Japanese. The mentor persisted in speaking English all the time; he spoke English not only during class but also when he met students outside class such as in the hallway, and during homeroom meetings. He was perceived as a very determined English teacher and other teachers respected the way he behaved and taught. This does not necessarily mean other teachers tried to follow his style; however, he made a strong impact on Participant B and served as a role model teacher ([3] in Figure 2).

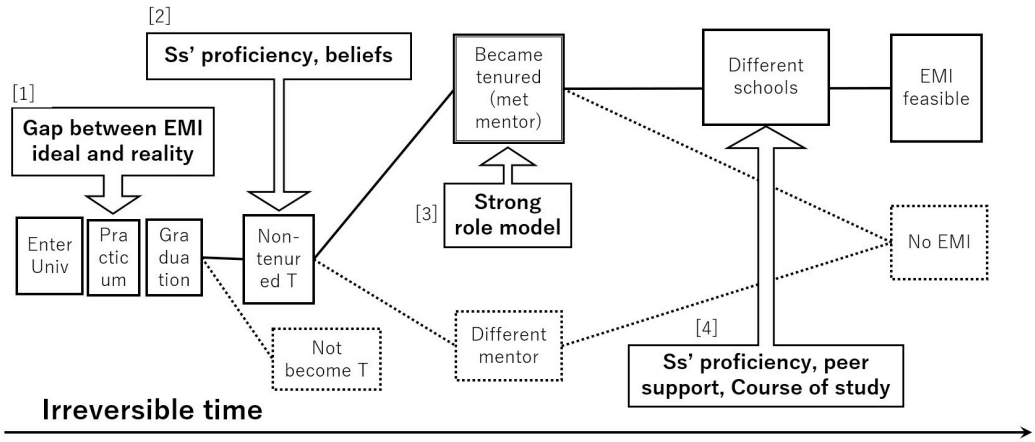


Figure 2: TEM chart for Participant B

Before that, Participant B actually found it difficult to teach English in English. She had learned that English should be taught in English in teaching methodology courses at university; however, experiences during her two-week practicum at the senior high school from which she had graduated made her despair of such an idea ([1] in Figure 2). Thereafter, she continued to be discouraged and could not use much English in her first year of teaching as a non-tenured teacher because her students did not accept the idea of using English for communication in class and rather preferred learning English for the university entrance exam ([2] in Figure 2). It was only when she met a role model teacher that she began to discover how she could teach using English. Because the impact of that mentor was so strong, she continued the same EMI teaching style, even after she was transferred to different schools. Toward the end of our interview, Participant B mentioned that introduction of the TEE policy in the Course of Study enhanced acceptance of English use in senior high school classrooms; therefore, it became easier to get support and understanding from students and colleagues ([4] in Figure 2). She could thus reach her current stage where she teaches English in English as much as possible.

Conclusions and Suggestions

With respect to my first research question, using TEM analysis I found that teachers who participated in this study hesitated to use more English in their classes because they felt that students were not ready to be immersed in EMI. It seems that when teachers encounter students with limited proficiency, they tend to feel reserved and refrain from using English. Fortunately, there is more support for teaching English in English now, as compared to the past. Students have begun to accept that EMI is good for them, and this makes it easier for teachers to use English in class. Regardless of the level of student, teachers need to find ways to make their English instruction understandable and enjoyable for their students. In such circumstances, mentor teachers can demonstrate practical solutions toward overcoming reservations about EMI.

Where the second question is concerned, my TEM analyses showed that meeting a strong role-model teacher was the obligatory passage point whereafter both teachers participating in this study adopted EMI. This implies that mentors are vital, and that

being instructed by the right ones—proficient, skilled teachers who are determined to conduct EMI classes—can be a formative experience that promotes more use of EMI. The mentor teachers referred to in this study actually demonstrated how teaching English in English could be done and how their students could enjoy themselves during that process, all the while improving their English.

Two items that require more research with respect to the first finding would be (1) the impact of teachers having to move schools every five years, and (2) the role that tenure might play in teachers' decision-making processes with regards to using EMI. Both of these considerations are areas for future research but, given available data, extend beyond the scope of the current investigation.

My only reservation about the second finding would be that, while newly employed teachers are assigned to a mentor for one-year on-the-job training, trainee teachers have no say in choosing that mentor. Mentors can thus serve as positive or negative role models according to a process that is more or less random. This process merits greater consideration. Mentors should be carefully selected based on demonstrated EMI teaching abilities that indicate they will serve as good role models. This is extremely important for beginning English teachers' career trajectories and for the success of EMI initiatives to date and hereafter.

Acknowledgements

This research was supported by Grants in Aid for Scientific Research from the Japan Society for the Promotion of Science under project No. 18K00744. Appreciation for editing and proofreading the manuscript goes to my colleague, Prof. George MacLean.

References

Japanese Ministry of Education, Culture, Sports, Science, and Technology (MEXT). (2019). Annual report of English education for public schools for the academic year of 2018. (Original in Japanese): https://www.mext.go.jp/a_menu/kokusai/gaikokugo/1415042. htm

Negishi, M. (2012). The Japanese Society of English Language Education (Ed.) *Official Proceedings for the 38th JSELE Annual Conference* (pp.538-539)

Sato, T. (2017). *Collected papers on Trajectory Equifinality Approach*. Tokyo: Chitose Press Inc.

Sato, T., Yasuda, Y., Kido, A., Takada, S., & Valsiner, J. (2006). The discovery of Trajectory Equifinality Model (Original in Japanese). *Japanese Journal of Qualitative Psychology, 5, 255-275.*

Sato, T., Mori, N. & Valsiner, J. (Eds.) (2016). *Making of the future: The Trajectory Equifinality Approach in cultural psychology*. Charlotte: Information Age Publishing, Inc.

Valsiner, J. & Sato, T. (2006). Historically Structured Sampling (HSS): How can psychology's methodology become tuned in to the reality of the historical nature of cultural psychology? In Straub, J., Kölbl, C., Weidemann, D., & Zielke, B. (Eds.) *Pursuit of meaning: Advances in cultural and cross-cultural psychology* (pp.215-251). Bielefeld: Transcript Verlag.

Yasuda, Y., Nameda, Fukuda, & Sato, T. (Eds.) (2015). Application of TEA: How to utilize Trajectory Equifinality Approach (Original in Japanese). Tokyo: Shinyo-sha Inc.

Yasuda, Y. & Sato, T. (2012). *Life trajectory through TEM: A new approach in qualitative research* (Original in Japanese). Tokyo: Seishin-shobou Inc.

Resources

“Japanese ranked 53rd in English skills in annual worldwide survey” by Japan Times (11/9/2019): https://www.japantimes.co.jp/news/2019/11/09/national/japanese-ranked-53rd-english-skills-annual-worldwide-survey/#.XmTBbqj7THp

Contact email: mitsuyo108@gmail.com

The Effects of Questioning Strategies on Young Girl Students in Webquest Activities

Chiung-Hui Chiu, National Taiwan Normal University, Taiwan
Hsin-Wen Hu, National Taiwan Normal University, Taiwan
Guey-Fa Chiou, National Taiwan Normal University, Taiwan

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract
Promoting the science learning and science performance of girl students continues to be an important issue. This study explores the effects of questioning strategies on young girl students in a webquest activity. A quasi-experimental design was adopted for 46 fifth-grade girl students. These students participated in a mixed-gender group activity aided by questioning strategy with detailed question stems, simple question stems, or no questions. There were 11 groups of three in each kind of activity. Students were asked to study a scientific article and ask questions and answer questions about the article, then the students of each team were required to produce a science report collaboratively. The results showed that the girl students using detailed question stems had better results for their science report scores and science test scores. The findings of this study provide evidence to confirm that applying detailed question stems is a helpful strategy for young girl students undertaking webquest activity.

Keywords: questioning strategy, science learning, question stem, webquest activity.

iafor
The International Academic Forum
www.iafor.org

Introduction

Female learners are still of great concern to social scientists and policy makers in science-related issues (Stoet & Geary, 2018), while researchers continue to investigate strategies to help girls' science learning (Brotman & Moore, 2008). Erickson and Eriokson (1984) pointed out that disparities in science achievements increased with age, showing that men perform better than women. Simpson and Oliver (1985) made similar findings. Schibeci and Riley (1986) found that men have a more positive attitude towards science-related courses than women, and that attitude made men's science achievements higher than those of women. Becker (1989) analyzed 30 research papers; he pointed out that scientific achievements have gender differences among subjects, but the degree of the effect was quite small. However, no difference has been identified between school grades and science achievements. In other words, scholars have been inconclusive about the relationship between gender and scientific achievements.

Questioning is an important process for students to construct knowledge and metacognition (King, 1989); it also plays an important role in active learning, meaningful learning and scientific inquiry. Scientific dialogues such as explanations, assumptions, assessments, inferences, and clarifications all begin with questioning. High-quality cognitive questions can support the construction of scientific knowledge and scientific thinking. Some researchers have pointed out that asking questions and developing critical thinking are the core of science learning (Chin & Osborne, 2008; Zoller, Tsaparlis, Fatsow, & Lubezky, 1997).

When primary school students engage in online questioning activities, they have more opportunities for questioning and thinking. However, the prior knowledge and metacognitive skills of primary school students are not as good as those of high school and college students. If they are only dealing with the internet, they may not be able to benefit from such learning. Therefore, some researchers have proposed some strategies to assist students in asking questions: for example, peer-questioning and questioning tips (Choi, Land, & Turgeon, 2005). King (1989, 1993) used question-stems to scaffold and refine questions and deeper thinking for students, and also found that question-stems have positive effects on students' learning. However, related online questioning studies primarily serve high school students, college students, graduate students, and postgraduate students, and are less applicable for elementary school students (especially young girls). Therefore, the actual benefits od such learning are uncertain.

As such, the purpose of this study is to investigate the effects of different question-stem strategies on the quality of scientific reports and the gain scores regarding science achievement for K-5 girls in webquest activities. The two research questions are as follows:

1. Which question-stem strategy results in better quality science reports for K-5 girls?
2. Which question-stem strategy results in better gain scores of science achievement for K-5 girls?

Literature review

girl students and science learning

Many researchers have compared variables such as achievement, attitude, motivation, interest, and performance among boys and girls (Erickson & Erickson, 1984; Greenfield, 1997; Jovanovich & King, 1998; Morrell & Lederman, 1998; Simpson & Oliver, 1985; Wan & Lee, 2017). Furthermore, there is ample evidence that men have a more positive attitude towards science and are more motivated to practice science (Baker, 1983; Suchner, Miller & Shanks, 1983).

Becker (1989) used meta-analysis to analyze 30 research literatures related to academic achievement. The study found that while boys have significant advantages in biology, general science, and physics, girls and boys show no significant differences in mixed science, geography, earth science, and chemistry learning. Sadker, Sadke, and Steindam (1989) found that although boys performed better in mathematical reasoning and spatial relationships than girls, in terms of academic achievement, the results of elementary school girls in mathematics and science were significantly better than boys.

Tenenbaum and Leaper (2003) surveyed 52 middle-income families' 11-year-old and 13-year-old children's science achievements and found that there were no differences in science achievements, self-efficacy, and interests among different genders and grades. However, parental beliefs affected their children's interest in science and self-efficacy; parents' expectations of boys' science performance were higher than those of girls.

Reynolds and Walberg (1991) used meta-analysis to study Walberg's literatures in 1981, proposing three important factors that affect students' science achievements, namely: personal factors (such as ability, gender, age, learning motivation); teaching factors (such as teaching time and teaching quality); and psychological factors (such as class environment, family environment, peer environment, and learning media). Among them, the greatest influence on students' science achievements was their own abilities (prior knowledge), and gender was not the most important factor affecting students' scientific learning achievements.

Questioning learning

In science learning, students' questioning is an important and necessary cognitive skill (Hu, Chiu, & Chiou, 2019). Questioning is an important strategy to promote learning and thinking (Buchanan Hill, 2016; Chikiwa & Schäfer, 2018; Dillon, 1981; Elder & Paul, 1998), and is widely influential in teacher instruction and student learning. Questioning strategies can arouse students' motivation and interest (Simpson & Anderson, 1981), suggesting learning priorities, facilitating learning discussions and student cognition, and assessing teaching effectiveness (Hunkins, 1972; King, 1989). When students face problems, they need to recall their experiences, analyze, summarize, organize, judge, and then attain appropriate answers; this process can bring about deeper thinking, assist students in elaborating upon their ideas, expand their breadth of thought, and enhance their level of thinking (Carin & Sund, 1971). Therefore, teachers can make good use of questioning techniques and questioning strategies to enable students to generate cognitive conflicts and then construct new

knowledge. As such, this enhanced effectiveness of learning will bring about considerable benefits.

King (1994) pointed out that asking a "good question" can help a student's thinking process. Eggleston et al. (1976) (demonstrated that in order to develop students' knowledge structure, teachers must first confirm that students have basic knowledge before they can enter high-level questioning—thus, low-level questions are necessary. Bloom's cognitive taxonomy (1956) posits clear distinctions between levels, from simple to complex and from low to high, so it is often used in questioning learning. Bloom's taxonomy in the cognitive field is divided into the following categories: knowledge, understanding (comprehension), application, analysis, synthesis, and evaluation. Questions according to the six cognitive categories can be further classified into high-level questions (analysis, synthesis, evaluation) and low-level questions (knowledge, understanding, application). Based on these clear cognitive levels, teachers can design suitable questions in compliance with the achievement level of students to guide their engagement in learning activities

Methods

A quasi-experimental design and convenience sampling method were adopted.

Participants

46 fifth-grade girl students from a primary school in southern Taiwan participated in the study. These girl students participated in a mixed-gender group activity and they were divided into three groups with different questioning strategies: detailed question-stem strategy (Gd, 17 girls), simple question-stem strategy (Gs, 16 girls) and no question-stem strategy (Gn, 13 girls). Each group had 11 teams and each team (mixed-gender) had 3 students.

Questioning strategy

There were three questioning strategies for this study—detailed question-stem, simple question-stem and no question-stem. The detailed question-stem strategy provided students with unfinished sentences, the simple question-stem strategy just provided students with one or two words as an opener, and the no question-stem strategy did not provide any hints, as Table 1.

Table 1: Some Samples of Detailed-stem, Simple-stem and No-stem

Detailed-stem	Simple-stem	No-stem
1. What concept is applied to …?	1. How to apply…?	No prompts
2. What do you think causes …?	2. What result…?	given.
3. How do you solve…if…?	3. If…?	

Webquest Activity and Procedure

In science activities, students explored and compared possible factors and differences that affected rainfall among the three cities. At the beginning of the activity, students read a related article, asked and answered questions about this scientific article, and then collected rainfall data for all months of the year. Students then needed to draw

statistical graphs based on this rainfall data to assist in analyzing the data. Finally, the members of each team needed to collaborate to produce a scientific report about the differences in rainfall among the three cities. Students implemented this webquest activity in an online system (Hu et al., 2019).

The experiment of this study was carried out weekly during science class; students were led by the same science teacher each time in the computer lab. This activity lasted for 3 months. Before the activity, students had a pre-test of achievement test, while after the activity, students had the post-test of achievement test.

Measurements

Students' scientific reports and achievement tests were measured in this study.

Scientific report quality. The scientific reports were assessed by their science teacher based on evaluation criteria, as shown in Table 2 (Hu et al., 2019). Since each scientific report was written in cooperation with the team members, the score of report was also the score of individual team members.

Table 2: The Scoring Criteria for the Scientific Report

Report evaluation criteria	point
1. The title of the report is clear and understandable	10
2. The information collected meets the learning task requirements	10
3. The information collected is complete and recorded correctly	10
4. The presentation of the data has good organization	10
5. The analysis of the data has a logicality	20
6. The content of the discussion can meet the task's topic	20
7. Conclusions have sufficient basis and support	20

Achievement test. A quiz was developed by researchers to evaluate the effect of the students' gain score. This quiz contained right and wrong questions and short answer questions which were related to scientific knowledge of rainfall.

Data analyses

ANCOVA was used in analyzing the quality of the scientific report. The covariate was the science exam score at school. ANOVA was used to determine whether the achievement gain was significantly different among the three groups. The achievement gain in this study referred to the acquisition of knowledge. Gain scores were counted to analyze learning outcomes. There were three kinds of gain score in the study: 1) the gain score of total score; 2) the gain score of right and wrong scores; and 3) the gain score of short answer scores. The gain score was calculated for each individual student by measuring the difference from pre-test to post-test (M = posttest - pretest).

Results and Discussion

Scientific Report Quality

The assumption of equality of variance, F(2, 43) = .182, p = .835, and the homogeneity of regression assumption, F(2, 43) = .696, p = .505, were accepted. The results of ANCOVA revealed a significant difference among the three groups; F(2, 43) = 4.074, p = .024, partial η^2 = .162. The LSD test further showed that Gd had significantly better quality than the Gn did (p = .007); however, neither Gd and Gs nor Gs and Gn showed significant difference in the quality of their scientific report. The results showed that detailed question-stem strategy made helped girls to write better quality scientific reports than did the other two strategies. This detailed question-stem may serve to provide more tips, so that students can easily conduct Q & A discussions, focus on scientific tasks, and thus have better results. The study also found that the students in the simple question-stem group asked more invalid questions (incomplete questions), perhaps because only one or two words at the beginning of the sentence were provided, preventing students from deep thinking and having less in-depth discussion, thus affecting its effectiveness. The no question-stem group, because of no prompt, had the worst effect (adjusted means were $M_{detailed}$ = 56.82, M_{simple} = 52.94, and M_{no} = 44.00, respectively）

Achievement Gain

The results of ANOVA showed a significant difference among the three groups (as Table 3). In the gain score of the total, the results of post hoc comparison showed that Gs had a more significant performance than Gn. In the gain score of short answer questions, girl Gd had a more significant performance than Gn. In the gain score of true-and-false questions, girl Gs had a more significant performance than Gn. From the results, the girl students' performance was not good in no question-stem group, and the girl students of Gs had a better gain score for the total and true-and-false questions. However, it was interesting to find the girl students of Gd had a better performance in the gain score of short answer questions. It seems that Gd's students were provided with more clues and guidance, so that those girl students had more in-depth thinking, enabling them to have more complete and deeper answers for the short-answer questions. Although the Gs is more effective in the gain score of the total, it may be caused by the better scores of the right and wrong questions; however, the short answer questions were not performed well. Since there was no guidance for the no question-stem group, it did not help those girl students much.

Table 3: ANOVA Results of Gain Score of Total, Right and Wrong, and Short answer

Group	N	M^a (SD^a)	M^b (SD^b)	M^c (SD^c)	F	Post Hoc comparison
Detailed	17	9.93 (6.56)	2.64 (2.26)	7.29 (6.36)	F^a (2,43) = 5.51**	Gs^a-Gn^a, p = .009
Simple	16	13.63 (12.30)	1.38 (3.14)	12.25 (11.75)	F^b (2,43) = 3.85*	Gd^b-Gnb, p = .029
No	13	0.65 (12.72)	-0.12 (2.61)	0.77 (12.58)	F^c (2,43) = 4.40**	Gs^c-Gn^c, p = .018

Note. *p < .05. **p < .01.

[a]The gain score of total questions

[b]The gain score of short answer questions

[c]The gain score of true-and-false questions

Conclusions

In this study, we compare the effects of different question-stem strategies on the quality of scientific reports and science achievement for girl primary school students in a webquest activity. The results revealed that the detailed question-stem strategy better facilitated the writing quality of science reports and improved scores for short answer questions, the simple question-stem strategy had the best gain score for achievement tests, and the no question-stem strategy was disadvantageous for girl students' science learning. Although the detailed question-stem strategy did not always provide the best result in each variable, it worked well for girl students in variables that require more in-depth thinking. It may provide an idea for elementary school teachers in supporting and encouraging girls to engage in science learning. Future research can consider different question-stem strategies for different collaborative tasks. Moreover, the issue of personal learning styles of girl students should be discussed in future research. In the study, we used a special online questioning system, a cooperation model of a three-person team, fifth-grade girl students, and a small number of participants; as such, the results of the study should not be definitively inferred.

References

Baker, D. R. (1983, April). *The relationship of attitude, cognitive ability, and personality to science achievement in the junior high school.* Paper presented at the annual meeting of the National Association for Research in Science Teaching, Dallas, TX.

Becker, B. J. (1989). Gender and science achievement: A reanalysis of studies from two meta‐analyses. *Journal of Reseach in Science Teaching, 26*(2), 141-169. doi:10.1002/tea.3660260206

Bloom, B.S. (1956). *Taxonomy of Educational Objectives, Handbook I: The Cognitive Domain.* New York: David McKay.

Brotman, J. S., & Moore, F. M. (2008). Girls and science: A review of four themes in the science education literature. *Journal of Research in Science Teaching, 45*(9), 971–1002. doi:10.1002/tea.20241

Buchanan Hill, J. (2016). Questioning techniques: A study of instructional practice. Peabody. *Journal of Education, 91*(5), 660-671. doi:10.1080/0161956X.2016.1227190

Carin, A. A., & Sund, R. B. (1971). *Developing questioning techniques: A self-concept approach*: Merrill Publishing Company.

Chikiwa, C., & Schäfer, M. (2018). Promoting critical thinking in multilingual mathematics classes through questioning. *Eurasia Journal of Mathematics, Science and Technology Education, 14*(8). doi:10.1080/0161956X.2016.1227190

Chin, C, & Osborne, J. (2008). Students' questions: A potential resource for teaching and learning science. *Studies in Science Education, 44*(1), 1-39. doi:10.1080/03057260701828101

Choi, I.; Land, S. M.; Turgeon, A. J. (2005). Scaffolding peer-questioning strategies to facilitate meta-cognition during online small group discussion. *Instructional Science, 33*(5-6), 483-511. doi: 10.1007/s1125100512774

Dillon, J. T. (1981). To question and not to question during discussion: 1. Questioning and discussion. *Journal of Teacher Education, 32*(5), 51-55. doi: 10.1177/002248718103200512

Eggleston, J. F. E., Galton, M. J., & Jones, M. E. (1976). *Processes and products of science teaching*: Macmillan Education.

Elder, L., & Paul, R. (1998). The role of Socratic questioning in thinking, teaching, and learning. *Clearing House, 71*(5), 297–301. doi:10.1080/00098659809602729

Erickson ,G. L. & Eriokson, L. J. (1984). Females and science achievement：Evidence, explanations, and implication. *Science Education, 68*(2), 63-89. doi:10.1002/sce.3730680202

Greenfield, T. A. (1997). Gender and grade-level differences in science interest and participation. *Science Education, 81*(3), 259-275. doi:10.1002/(SICI)1098-237X(199706)81:3<259::AID-SCE1>3.0.CO;2-C

Hu, H. W., Chiu, C. H., & Chiou, G. F. (2019). Effects of question stem on pupils' online questioning, science learning, and critical thinking, *The Journal of Educational Research, 112*(4), 564-573. doi:10.1080/00220671.2019.1608896

Hunkins, F. P. (1972). *Questioning strategies and techniques.* Boston, MA: Allyn and Bacon.

Jovanovich, J., & King, S. S. (1998). Boys and girls in the performance-based science classroom: Who's doing the performing? *American Educational Research Journal, 35*, 477- 496. doi:10.3102/00028312035003477

King, A. (1989). Effects of self-questioning training on college students' comprehension of lectures. *Contemporary Educational Psychology, 14*(4), 366-381. doi: 10.1016/0361-476X(89)90022-2

King, A. (1993). Effects of guided cooperative questioning on children's knowledge construction. *Journal of Experimental Education, 61*(2), 127-148. doi: 10.1080/00220973.1993.9943857

King, A. (1994) Guiding knowledge construction in the classroom: Effects of teaching children how to question and how to explain. *American Educational Research Journal, 31*(2), 338–368. doi: 10.3102/00028312031002338

Morrell.P. D., &Lederman, N. G. (1998). Students' attitudes toward school and classroom science: Are they independent phenomena? *School Science and Mathematics, 98*, 76-82. doi:10.1111/j.1949-8594.1998.tb17396.x

Reynolds, A. J., & Walberg, H. J. (1991). A structural model of science achievement. *Journal of educational psychology, 83*(1), 97-107. doi: 10.1037/0022-0663.83.1.97

Sadker, M., Sadker, D., & Steindam, S. (1989). Gender Equity and Educational Reform. *Educational Leadership, 46*(6), 44-47.

Schibeci, R. A. & Riley, J. P. (1986). Influence of students' background and perception on science attitudes and achievement. *Journal of Research in Science Teaching, 23*(3), 171-187. doi: 10.1002/tea.3660230302

Simpson, R. D., & Anderson, N. D. (1981). *Science, students, and schools: A guide for the middle and secondary school teacher*: John Wiley & Sons.

Simpson, R. D. & Oliver, J. S. (1985). Attitude toward science and achievement profiles of male and female science student in grades six through ten. *Science Education, 69*(4), 511-526. doi:10.1002/sce.3730690407

Stoet, G., & Geary, D. C. (2018). The Gender-Equality Paradox in Science, Technology, Engineering, and Mathematics Education. Psychological Science, 29(4), 581–593. doi:10.1177/0956797617741719

Suchner, R. W., Miller, J. D., & Shanks, C. (1983). Gender and educational aspirations. A paper presented at the annual meeting of the American Educational Research Association, Montreal, Quebec, Canada.

Tenenbaum, H. R., & Leaper, C. (2003). Parent-Child conversations about science: The socialization of gender inequities? *Development Psychology, 39*(1), 34-47. doi:10.1037//0012-1649.39.1.34

Wan, Z. H., & Lee, J. C. K. (2017). Hong Kong secondary school students' attitudes towards science: a study of structural models and gender differences. *International Journal of Science Education, 39*(5), 507–527. doi:10.1080/09500693.2017.1292015

Zoller U., Tsaparlis G., Fatsow, M., & Lubezky A.(1997). Student self-assessment of higher-order cognitive skills in college science teaching. *Journal of College Science Teaching, 27*(2), 99-101.

Contact email: tnhusw@tn.edu.tw
80508004e@ntnu.edu.tw

The Development of the Participatory Community Way of Life Local Curriculum Integrated with Royal Initiative Project

Kittawan Khomsom, UdonThani Rajabhat University, Thailand
Chanchira Choomponla, UdonThani Rajabhat University, Thailand
Kanisorn Tonseenon, UdonThani Rajabhat University, Thailand

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract
The purposes of this study were to: 1) develop and validate educational quality of the participatory community way of life local curriculum integrated with Royal Initiative Project and requirement according to school and community context; 2) study learning outcomes by using local curriculum that development: knowledge, process, and attitude toward learning activities of the local curriculum; and 3) enable students' learning and recognition of the importance of Royal Initiative Project and sufficiency economy that affect the community pathway. The steps of the study were as follows: 1) develop and validate educational quality of the community way of life local curriculum integrated with Royal Initiative Project; and 2) implement the curriculum developed. The findings were as follows: 1) the community way of life local curriculum integrated with Royal Initiative Project could be categorized into five groups, students learning out of class time based on the developed local curriculum employed high educational quality ($\bar{X}$= 4.53); 2) the learning outcomes of students on exposing to instruction utilizing the local curriculum were found positive: 2.1) knowledge learning outcomes of students were at the "good" level ($\bar{X}$= 4.13) which was no less than the criteria of 75 %; 2.2) process learning outcomes of students were at the "high" level ($\bar{X}$= 2.53) which was no less than the criteria of 75%; and 2.3) attitude toward activity learning by local curriculum of the students were at the "good" level ($\bar{X}$= 4.27) which was no less than the criteria of 75%.

Keywords: Local Curriculum, Royal Initiative Project, Sufficiency Economy

iafor
The International Academic Forum
www.iafor.org

Introduction

A local curriculum refers to experiences provided to local learners. Such experiences are adapted from the environment, community, resources, including personnel and interests. It is especially designed to empower learners with knowledge, abilities, skills, attitudes, and quality living by using local resources and local wisdom. Students can learn based on their own life experiences, in the classroom and outside of the classroom with regards to their economic, social, and cultural backgrounds as well as encourage participation in solving various problems of the country (Hunsaad, P. 2010). A local curriculum is a curriculum that focuses on learners and teachers to organize learning and teaching by using local content or wisdom to improve, add, or adapt to suit the core curriculum which will lead to love and pride of their locality. In addition, it encourages students to have direct experience in life, career, economy and society, and achieve the goal of education management (Ongkulana, S. 2004).This can allow students to experience the nature or culture in the community. A local curriculum is also important because they meet the needs of the community and solve the problems of education with the community as one. It also allows educational institutions to be administrators and teachers who are curriculum users to develop the curriculum together with people in the community which strengthen the relationship between students and people in the community (Khamboonmee, P. 2002).

Pid Thong Lang Phra Foundation Under Royal initiatives and the Institute for the Promotion and Development of Pid Pid Thong Lang Phra Foundation Under Royal Initiatives Activities are agencies responsible for knowledge management and development promotion according to the royal initiatives of the late His Majesty the King Rama 9 as a model to develop at the village level and seize knowledge based on the 6 dimensions initiative, namely water, soil, agriculture, forestry, renewable energy, and environment in consistence with the geopolitical society with international knowledge and the local wisdom as a framework and work reform by creating a development system based on the area. Focus on community level and change the way of thinking in working based on opinions, needs, and potentials of the villagers. In accordance with the royal initiative to understand, access, and develop. (http://www.pidthong.org/main.php) Ban Khok Laam and Ban Saeng Aram, Kut Mak Fai Subdistrict, Nong Wua So District, Udon Thani Province is an area chosen by Pid Thong Lang Phra Foundation to be the development model for the mentioned development. The operation led to collaborations among many sectors. In addition, it is able to efficiently manage water in Huai Khlai Reservoir under the Royal Initiative. It results in people in the village can do agriculture during the dry season and enable more agricultural activities including self-development activities together in the community resulting in a harmonious community where duties are allocated and network coordination with good and effective planning including the ability to mobilize resources for ongoing activities causing the villagers to have a better quality of life (Kaewmahawong, T. 1989). The development by applying the royal initiatives appropriately in the said area makes the community aware of the application of what they have learned and used them to solve problems and tackle various problems in the community and allow villagers to set directions together, form group within the village using the available social capital which strengthens the community in a short time (Chanthra, A. B.E. 2543) As a result of co-operation, the village increased water storage during the rainy season and used water for cultivation during the dry season or after farming. It also promotes agriculture by raising animals and growing vegetables

and fruits (Integrated agriculture). Currently, there are nine funds and two groups established. The funds include: 1) Fertilizer Fund; 2) Rice Seed Fund; 3) Vegetable Seed Fund; 4) Swine Fund; 5) Animal Medicine and Pharmaceutical Fund; 6) Water User Fund; 7) Marketing Fund; 8) Duck Fund; and 9) Study Visit Reception Fund (Housewife Fund). Two groups established are: 1) water pump treatment group and 2) biogas group. From the development by creating mutual understanding among the people in the community, creating unity and cooperation and have the patience to succeed in addition to increasing the income of the villagers, it also helps the villagers to have enough food and interestingly, from inquiring the villagers that family members who worked in other countries have returned to live and work here once again and this brings the family warmth back.

From the above mentioned, the researchers were interested in developing a local curriculum integrated with community development on the basis of participation, needs in line with the school and local context by focusing on the study of the results of utilizing local curriculum, integrated with community development in three areas: royal knowledge, skills, processes, as well as attitude towards learning activities according to the curriculum and for learners to be aware of the importance of projects under royal initiatives, sufficiency economy philosophy, and local wisdoms that affects daily life and the way of life of the community.

Research objectives

1. To develop and validate educational quality of the community way of life local curriculum integrated with Royal Initiative Project and requirement according to school and community context.
2. To study learning outcomes by using local curriculum developed: knowledge, process, and attitude toward learning activities of the local curriculum.
3. To enable students' learning and recognition of the importance of Royal Initiative Project and sufficiency economy that affect the community pathway.

Research Methodology

This research was conducted in 2 steps as follows:

Step 1: Develop and validate educational quality of the participatory community way of life local curriculum integrated with Royal Initiative Project.

1.1 Study the readiness and needs of communities and schools under the Royal Initiative Project "Pid Thong Lang Phra" at Ban Khok Laam and Ban Saeng Aram, Kut Mak Fai District, Nong Wua So District, Udon Thani Province.

1.2 Study the information about the Royal Initiative Project "Pid Thong Lang Phra" at Nong Wua So Udon Thani Province, Philosophy of the Sufficiency Economy, local wisdom, and the core curriculum for basic education, 2008.

1.3 Develop the community way of life local curriculum integrated with the Royal Initiative Projects that is consistent with the context of Ban Khok Lam School by dividing the learning content into five bases according to the activities "Reduce school time, increase learning" of the school, which are: 1) the life library base; 2) the Chewi Mee Suk's career base; 3) the school bank base; 4) the sufficient agriculture

base; and 5) the virtue base and public mind. The curriculum was drafted, assessed by specialists and improved.

Step 2: Implement community way of life local curriculum integrated with the Royal Initiative Projects.

2.1 The curriculum developed was administered to the target group consisting of 30 Prathom Suksa 4-6 students at Ban Khok Lam School, Kud Makfai Sub-district, Nong Wua So District, Udon Thani Province who enrolled in the 2017 academic year.

2.1.1 The independent variable is the learning activities management according to the local curriculum, the way of life of the community, the integration of the Royal Initiative Project.

2.1.2 The dependent variables are;: 1) Knowledge learning outcomes, 2) Process skills learning outcomes, and 3) Attitude towards curriculum learning activities.

2.2 The content researched were obtained from the development of the community way of life local curriculum integrated with Royal Initiatives which is in line with the school context, dividing the learning content into five bases which are: 1) the life library base; 2) the Chewi Mee Suk's career base; 3) the school bank base; 4) the sufficient agriculture base; and 5) the virtue base and public mind.

2.3 The implementation was done in the school's "Reduce school time, increase learning" periods in the form of learning activity bases throughout the academic year 2017 with the total time of 45 hours.

2.4 Research design: This research has the One Group Pretest - Posttest Design (John & James, 2005).

Pretest	Treatment	Posttest
T1	X	T2

T1 refers to the test before studying (Pretest)

X refers to learning management according the community way of life local curriculum integrated with Royal Initiatives

T2 refers to the test after the implementation (Posttest)

2.5 Instruments used in assessing learning management according to the community way of life local curriculum integrated with Royal Initiatives were as follows:

2.5.1 Learning outcome evaluation form for knowledge

2.5.2 Learning outcome evaluation form for process skills

2.5.3 Questionnaire on students' attitude towards curriculum activities

Data collection

The study implementation and data collection were done following these steps:

1. An orientation was conducted before the implementation to explain the purposes of the activity arrangement for the target student group, and organize ice-breaking activities to get to know each other before conducting the implementation in which the researchers conducted the data collection by themselves.

2. Conduct experimental teachings by using the community way of life local curriculum integrated with Royal Initiatives developed by organizing five activity bases in the school's "Reduce school time, increase learning" periods, which are: 1)

the life library base; 2) the Chewi Mee Suk's career base; 3) the school bank base; 4) the sufficient agriculture base; and 5) the virtue base and public mind. The implementation consisted of 45 hours of experimental teachings. During the activity, the researchers and the research assistants closely advised students on how to do the activities, observed the process skill behaviors of each student by using the process skill evaluation form and bringing scores to analyze for the learning outcome scores on process skills. After each activity, each student was to create a concept map to summarize the knowledge gained to be used as an analysis score for learning outcomes on the knowledge aspect.

3. After the teaching, students were to complete the questionnaires on students' attitude towards curriculum activities in order to analyze for the attitude towards the learning activities of the curriculum.

4. The scores from the concept map, the process skill assessment, and the results of the questionnaire on students' attitude towards curriculum activities were statistical analyzed.

Data Analysis

The researchers conducted the data analysis as follows:

1. Analyze the quality of the community way of life local curriculum integrated with Royal Initiative Project according to the average score criteria of 5 levels which are:

Mean 4.21 - 5.00 means the quality evaluation result is very good.
Mean 3.41 - 4.20 means the quality evaluation result is good
Mean 2.61 - 3.40 means the quality evaluation results are at a medium level.
Mean 1.81 - 2.60 means the quality assessment results are at a fair level.
Mean 1.00 - 1.80 means quality evaluation results are in a level of improvement.

2. Analyze the learning outcome scores on the aspects of knowledge, process skills and attitudes towards curriculum activities after carrying out the learning management activities according to the curriculum using calculating arithmetic mean ($\bar{X}$) standard deviation (S.D) and percentage by comparing with the preset criterion score which should not be less than 75 percent by t-test one group sample.

Conclusions

Part 1: Development and quality of the community way of life local curriculum integrated with Royal Initiative Project.

The community and school survey results of the development of the community way of life local curriculum integrated with Royal Initiative Project by studying the readiness and needs of communities and schools under the Royal Initiative Project “Pid Thong Lang Phra” at Ban Khok Lam and Ban Saeng Aram, Kud Makfai Sub-district, Nong Wua So District, Udon Thani Province reveal that the community and the schools require a curriculum that employs content regarding the philosophy of sufficiency economy, knowledge that can be used in daily life, volunteer spirit, local pride, how to use and preserve local natural resources, and most importantly, application of the curriculum in other schools based on the philosophy of the sufficiency economy and the way life of the community by dividing the learning

content into five bases in the school's "Reduce school time, increase learning" periods, which are:

Learning Base 1 Life Library: Sufficiency Economy Philosophy

Learning Base 2 Chiwee Mee Suk's Career Base: Products from remnants of cloth

- 2.1 Pencil bags
- 2.2 Shoulder bags
- 2.3 Slipknot bags
- 2.4 Cute Key chains
- 2.5 Aprons

Learning base 3, School banks: Discipline of finance

- 3.1 Piggy Banks
- 3.2 Monthly income and expense accounts
- 3.3 Expense Plan

Learning Base 4, Sufficiency Agriculture: Natural Balance

- 4.1 Forestry Art
- 4.2 Water for life
- 4.3 Resource balance

Learning Base 5 Virtues: Public Mind

- 5.1 Unity
- 5.2 Matriotism
- 5.3 Public mind

The drafted curriculum was improved, and assessed the quality by specialists. The results of the evaluation on quality and appropriateness of the curriculum reveal the Sufficiency Agriculture Learning Base had the highest score ($\bar{X}$= 4.73), followed by the Chiwee Mee Suk's Career Base, the School Banks, the Virtues, and the Life Library ($\bar{X}$ = 4.65, 4.60, 4.41, and 4.28). The overall quality evaluation results of the curriculum are of very good quality ($\bar{X}$= 4.53).

Part 2: The implementation of community way of life local curriculum integrated with Royal Initiative Project.

2.1 Considering the learning outcomes on the knowledge aspect of students after learning using the community way of life local curriculum integrated with Royal Initiative Project by creating a concept map, it was found that the learning outcomes of students in the learning base 1) Life Library, 2) Chiwee Mee Suk's Career Base, 3) School Banks, and 5) Virtues are at a good level ($\bar{X}$= 4.10, 3.93, 4.20, 4.17 respectively). The students' learning outcomes were at a very good level ($\bar{X}$= 4.27) on the Learning Base 4, Sufficiency Agriculture. The overall learning outcomes were in a good level ($\bar{X}$= 4.13). When comparing the mean score after studying with criteria score, it is not less than 75 percent in all learning bases and overall that is the students had an average score of 75 percent no less than the criteria.

2.2 When consider the learning outcomes on the process skill aspect of students after studying using the community way of life local curriculum integrated with Royal Initiative Project by observing students' behaviors according to the three-point rating scale assessment form to evaluate three aspects, namely, 1) activity skills, 2) data management skills, and 3) data interpretation skills, it was found that students have the highest score on data management skills scores ($\bar{X}$= 2.61) followed by activity

skills and data interpretation skills ($\bar{X}$= 2.55, and 2.39 respectively). When comparing the mean score after studying with criteria score, it was found that the students had the mean scores of overall process skills ($\bar{X}$= 2.53) higher than 75 percent criteria.

2.3 On student attitudes towards learning activities in accordance with community way of life local curriculum integrated with Royal Initiative Project obtained by having students complete the questionnaire on learning management activities of the curriculum in each learning base, it was found that students' attitude towards learning activities is at a very good level ($\bar{X}$= 4.45) and attitude on perceiving benefits of the curriculum is at a good level ($\bar{X}$= 4.05). The overall attitude towards the learning activities is at the students had a very good level ($\bar{X}$= 4.27). When comparing the students' attitudes towards the activities of the curriculum with no less than 75 percent of the criteria, it was found that the students attitudes towards the activities of the curriculum in both aspects and overall were above the 75 percent criteria.

Acknowledgements

The authors wish to thank 1) Dr.Supatra Wanpen who kindness to verify my document, 2) Faculty of Education and Rajabhat Udon Thani University that support about travel and registration, and 3) My family and my friend who give encouragement in this work.

Reference

Chanthra, A. (B.E. 2543) *Social Capital to Establish a Strong Community*. Chiang Mai: Graduate School, Chiang Mai University

Hunsadee, P. (2010). *The development of a local curriculum for prathom suksa five students*. A Master thesis, Chonburi: Burapha University.

John, W.Best & James, V.Kahn, (2005). *Research in Education. 9th Edition*, India: Rahul Graphic Arts.

Kaewmahawong, T. (1989). *The development of a local curriculum on products from banana for prathom suksa six students.* A Master thesis of Education Program in Curriculum and Instruction, Ubonratchanani Rajabhat University

Khamboonmee, P. (2002). *The Development of Local Curriculum on the Topic of Banana's Food Products for Prathom Suksa VI.* A Master thesis in Educational. Rajabhat Institute Ubon Ratchathani.

Ministry of Education. (2009). *Guidelines for the supervision of sufficiency economy philosophy in education institutions*. Office of the Permanent Secretary.

Ministry of Education. (2007). *Strategies for driving sufficiency economy philosophy towards education institutions (2007-2011).* Office of the Permanent Secretary.

Ongkulana, S. (2004). *The Application of Indigenous Knowledge in Local Curriculum Development of the Primary Schools in Pichai District Uttaradit.* A Master thesis in Educational Administration. Uttaradit Rajabhat University

Pid Thong Lang Phra Foundation.(2010). from http://www.pidthong.org/main.php

Thongpakde, N. (2005). *Thailand's Economic Development and the Philosophy of Sufficiency Economy*. Unpublished.

Sufficiency economy philosophy project and new agricultural theory. (n.d.). Retrieved from http://xn--12cmc4a2ea2ac8bl2czera7lj.net/

Factors Influencing Legitimate Peripheral Academic Participation of Students in Higher Education

Sari Muthia Silalahi, Institut Teknologi Del, Indonesia

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract
The aim of this study is to examine factors influencing legitimate peripheral aspects such as: interpersonal teacher, student's behavior, classroom climate and environmental which has influence student's affective and cognitive. The data were obtained using methods: interviews and questionnaire. Random participant has been chosen for interviewed and population has been used for questionnaire. 1585 participants have filled the questionnaire and 24 students have interviewed. Interview data were recorded and analyzed. The results have processed, it was classified according to study programs following the indicator. The research finding shows that: lecturers and teaching assistants got 78 - 81%, academic and non-academic facilities got 74.91% - 80.86% and dormitory got 69.16% which have a big impact on influencing student's affective and cognitive. There were also issues such as teacher's centered-learning, dozy students and class situations can often be uncomfortable.

Keywords: Classroom conditions, environmental, interview, questionnaire, student's behavior, teacher's personality

iafor
The International Academic Forum
www.iafor.org

Introduction

Education enables individuals and society to participate comprehensively in the process of forming and developing knowledge, abilities, skills, and attitudes. The development of academic ability is also influenced by most factors including the attitude of lecturers, student behavior, classroom/laboratory, residence, and facilities.

Lecturers and staff should have an attitude in the forming of knowledge and information regarding the content they conveyed using modern technology and innovative methods in teaching and learning, managing discipline, directing and taking control of the class and other well-organized activities Maina (2010). Besides that, leadership is one of the influences factors changes institutions. Leadership by using knowledge, skills, and talents will produce students with unlimited resources that have good and positive outcomes (Ackerman, Moller & Katzenmeyer, 1996). The Council for Education Policy, Research, and Improvement (2003) state that the influence of quality of education is the lecturer's ability. So, lecturer characteristics and ability are the main factors in achieving the quality of education.

Apart from the resources provided, the regulations set and curriculum changes, it is also the main source of learning for students and lecturers in the class. One example: how were the students understand instruction from teachers and how much they learn is a factor that influences how they can survive and follow learning in school. This has become one of the focuses for educators in implementing education policies and regulations in academic institutions (Education for All, 2005). Kudari (2016) efficiency in classroom management as well, introduced and well managed according to the lesson plans, teaching strategies, teaching-learning processes, etc. When they have discipline and good communication between individuals, it will help students learn better and improve their academic performance.

The attitude of students also plays an important role in determining academics. The attitude that is held is disciplined, diligent, creativity and has positive thoughts in the terms of their schools, lecturers, and academics. With a positive attitude, they will be able to dedicate themselves wholeheartedly to learning and producing the desired academic results (Maina, 2010).

The same thing happened to academic institutions at IT Del. IT Del is an institution that focuses on technological and informatics knowledge. But in its development, IT Del also experienced an increase in student every years, this is also inseparable from some of the problems such as: the attitudes, knowledge, and skills of lecturers and students. At IT Del itself, it was found the most of the students 'academic abilities were very low, students' attitudes and behavior as well were also one of the issues need to be a concern.

This can be seen from the average value of the student that was grade in mathematics course from 2014 - 2018 and the attitude report from students. The following are some of the data presented in grafic1-3 to see the academic abilities of IT Del students.

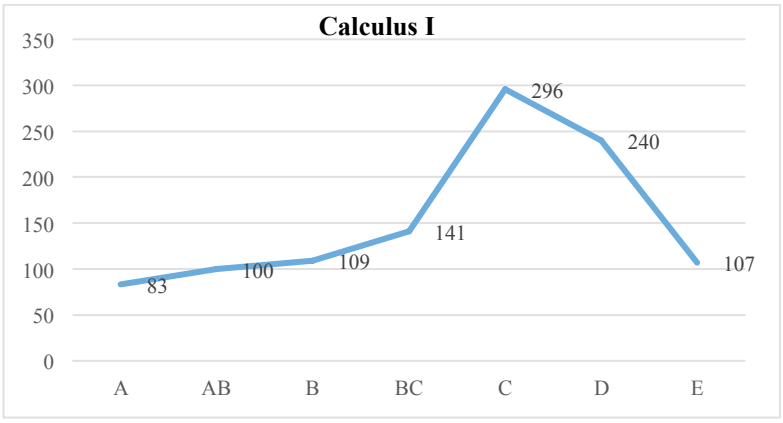


Chart 1 Grade of Calculus I 2014 -2018

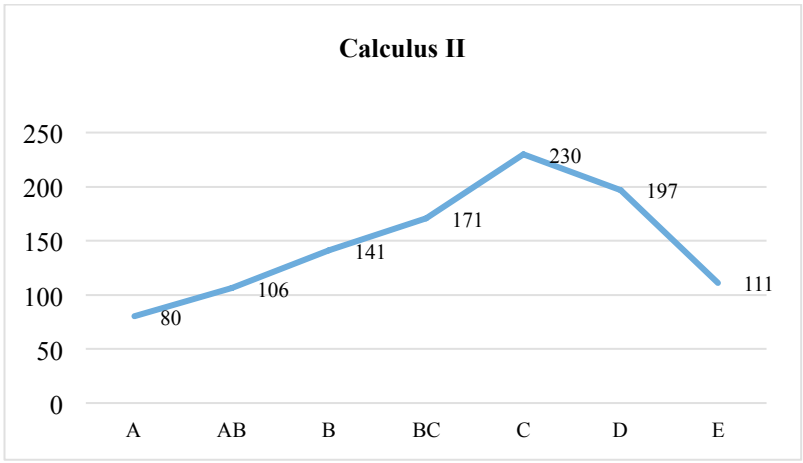


Chart 2 Grade of Calculus II 2014 -2018

(Source: Academic Administration IT Del)

Graphic 1 -3 shows the average score of the student in grade at IT Del was still very low, which is at an grade C and interval of 49.5 - 57. Besides that, it was found the recapitulation of students who were resigned. The data can be seen in graphic 4.

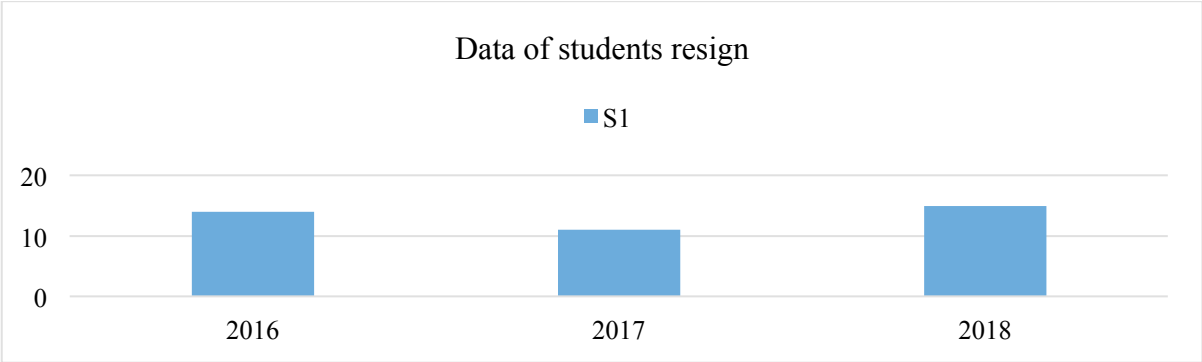


Chart 3 Data of students resign

(Source: Academic Administration IT Del)

Chart 3 describes it indirectly that there was a problem in students. So, in the end, they resign from institutions. Many possibilities caused this happened such as dissatisfaction of services from lecturer and staff, applicable rules/systems, facilities both classroom, and campus environments, and colleagues. Adding more information, students' administration recapitulates data on students who commit transgressions such as smoking and immoral. This was also supported by several lecturers who complained and found problems in doing learning process at IT Del.

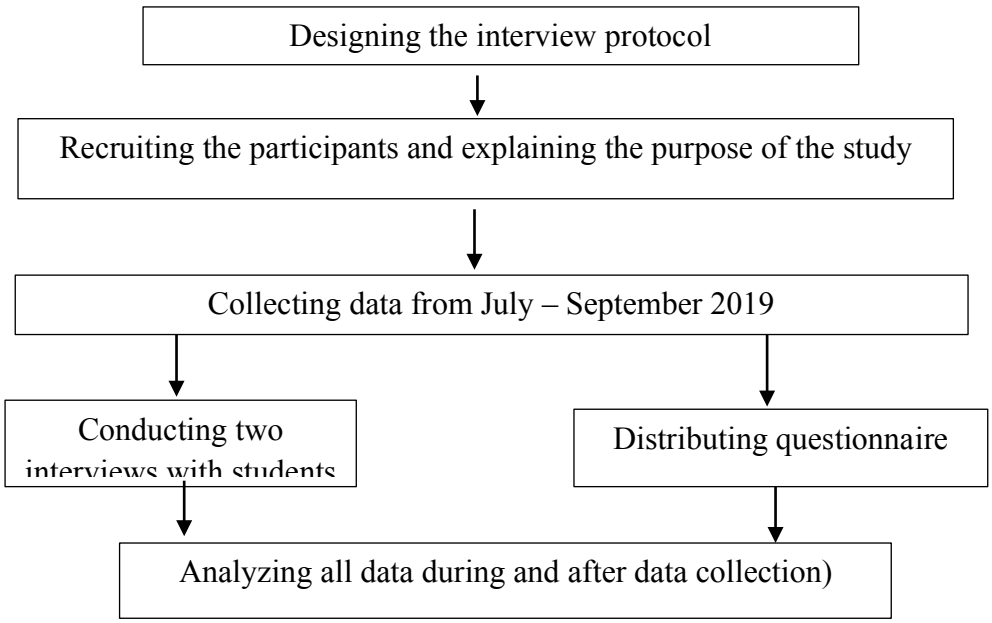
Based on observation and considerations from some of the problems have found in IT Del students. The researcher wants to analyze whether the factors which made students have less academic participation and unfavorable attitudes. Then the researcher wants to identify the main factors which would be found for supporting the advancement of academic institutions. All of these variables that affect student academic participation, this is also one that is the focus of research in the field of education (Srinivas, P., & Venkatkrishnan, S, 2016). This is also in line with Radheshyam H. G., Chandrahas C. H., Rakesh L. H. (2017) describing several parameters that have a significant impact on student performance and academic results in tertiary institutions such as family background, individual personality, academic background, and student environment.

The aim of the study is to investigate and describe the problems that presented about academic participation of students in higher education expecially in IT Del based on conseptual framework. The research question was what are the factors influencing academic participation of students?

Metodology

For the purpose of this study, all of the students in IT Del from 2014 -2019 in any major became the participants. 1541 students have filled the quasioner and 25 students randomly choosen for the interviews. Data sources included interviews with the students, one recording of their conversations in which the researcher discussed their problem and solution with students. The procedure of the study is shown in Figure 1.

Figure 1 *The Procedure of the Study*



Research Method and Conceptual Framework

The objects of this study are students. Qualitative and Quantitave method have chosen in this study (Slavin,1992).The questionnaire would be analysis by using a framework. The conceptual framework build by discussed and revision with other reaercher that had been conducted about problems in IT Del.

Result and Discussion

In this chapter, results of the analysis of problems presented from qusioner and interviews will be reported.

Table 1 Sum of the participant in any major

Studi Program	TI	SI	TE	MR	TB
2014	4	1	8	0	5
2015	49	54	49	57	26
2016	53	53	50	53	26
2017	54	59	47	51	23
2018	57	56	42	60	19
2019	62	62	31	0	16
Total	279	285	227	221	115

Table 1 shows that the average number of bachelor who filled the questionnaire was the highest participants. There was a participant represent in every year dari 2014 - 2108.

Table 2 Reliability statistics of the question in every study program

Reliability Statistics	TI	SI	TE	MR	TB
Cronbach's Alpha	0.984	0.967	0.982	0.977	0.978
Cronbach's Alpha Based on Standardized Items	0.986	0.972	0.984	0.981	0.981

Table 2 presents that every statement has given is reliable and valid for describing data. 42 statements could be able to measure the aims and to answer the question and this study.

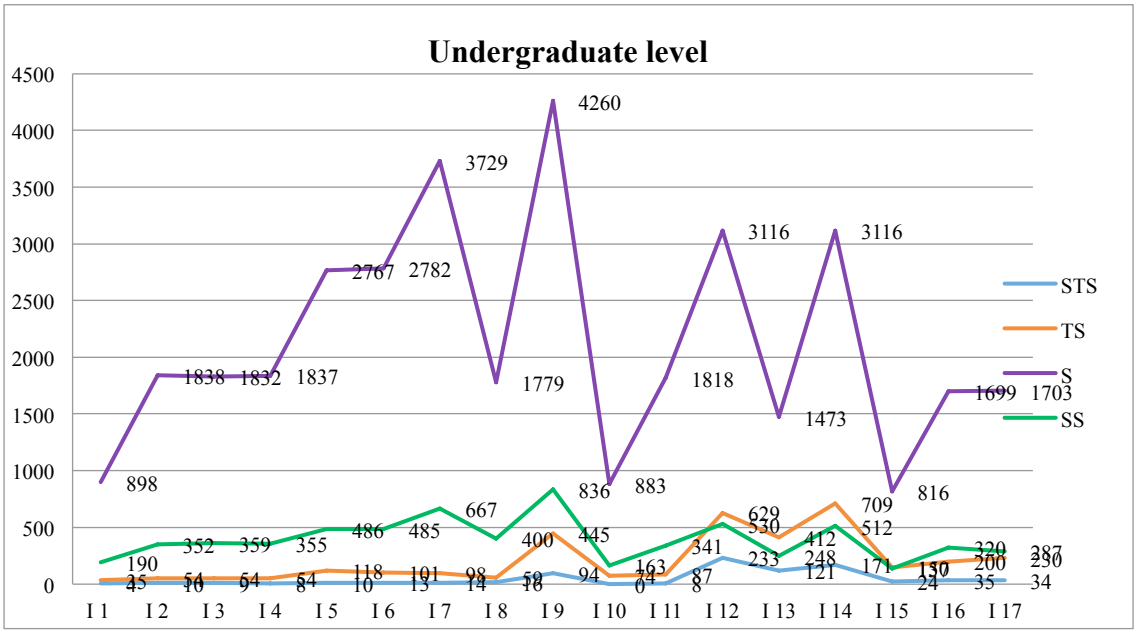


Chart 4 Questionnaire's result for Undergraduate level

In chart 4 emphasizes about student's responses in category aggrement including: Indicator 7 gets 82.72% which containing the coherence of assignments, quizzes, and examinations get the highest responses from students. This result different with diploma, it could be at the undergraduate level, they have more theory class than practical which makes more exercise, quiz, and exam.Thats why how important it is. Indicator 4 which containing counseling and guidancing from lecture and staff get 97.25%, Indicator 8 which containing location and number of students get 96.67%. Almost the same result with diploma in disaggrement responses, the result shows 1. Indicator 13 which containing the attitude and behavior dormitory staff get 23.65%, 2.Indicator 14 which containing dormitory and its facilities get 19.52%, and 3.Indicator 12 which containing academic and non-academic facilitie get 19.12%.

Assignment, quiz, and examination influence students' learning. It can be used as a measuring tool to review students' abilities in receiving the subject. In the end, they can get the motivation to follow the next subject and they can more understand either. The same explanation from Thorndike who defines in the law of exercise, i.e. the more frequently behavior is repeated or trained, the stronger the correlation will be. However, it would be weakened if the connection is not continued or stopped. It shows the aim of learning is repetition. The more it is repeated, the subject will be increasingly well managed.

At IT Del itself, lecturers and teaching assistants will provide assignments and quizzes to re-measure their understanding of the learning which has been carried out. However, there are several conditions when lecturers or teaching assistants gave excessive assignments and quizzes without taking into account the time students have. This condition makes students have less time to rest and results in the next learning process.

Then, there would be a responsibility for institutions and staff to allocate and prepare what students need to support t their learning in class or individual. There might be

included in classrooms (screens, projectors, whiteboards, stationery, and practical tools and materials used by lecturers / TA), library, and laboratory.

In addition, cleanliness and nicety of the class are also included as one of the influencing factors which have an influence on students' health and aesthetic. Therefore, maintaining cleanliness in school is very important. Cleanliness can also improve students' concentration and focus on learning. So, keeping the classroom feel good and clean is the obligation of students for learning activities.

Interview results

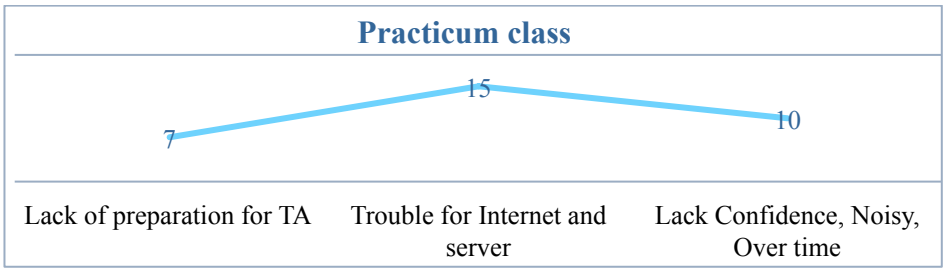


Chart 5 Interview results for practicum class

IT Del has more practical than theoretical credits. The class will be taught by teaching assistants with modules and materials. The aim is to apply the theories that have been delivered by lecturers. Students will be specifically guided and led to finding out whether students understand or not. In the end, the assistant will assign tasks that are submitted to the system at the specified time.

Chart 5 shows some of the deficiencies came out during practicum. Most happening are internet problems, trouble in a server, lack of confidence in conducting work, noisy, and sometimes even assistants who don't have good enough preparation for preparing material. It was one of the interruptions in learning which influence student's academic ability went down. Based on the data, academic administration in IT Del will try to solve the problems such as increasing the bandwidth, re-arranging servers and controlling the assistant preparation.

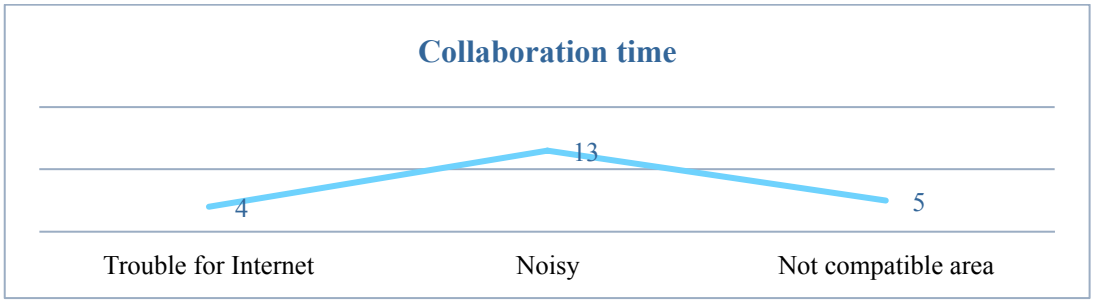


Chart 6 Interview results for collaboration time

IT Del applies individual learning time for their students which are held at night on the campus. The academic affair has organized the place and students are grouped according to class. They start at 8 pm - 10 pm. They are free to use a good laboratory, library, and internet. With the aims of Individual learning, students can have time to

repeat the material before or doing homework together. They even can discuss with peers or lecturers/teaching assistants.

Chart 6 indicates that students still face some problems in their learning, especially for the places. Places which determine by academic affairs are sometimes not appropriate. One of the examples is new students would be placed in the canteen. The type of canteen is open, then causing interruptions like insects, odor, cold, and noise. Perhaps, academic affairs or related stakeholders were less controlled about it.

Based on those problems, IT DEL will try to solve them in several ways such as trying to build a building, re-arranging places in out the academic time, forming teams who will manage and control the independent learning time.

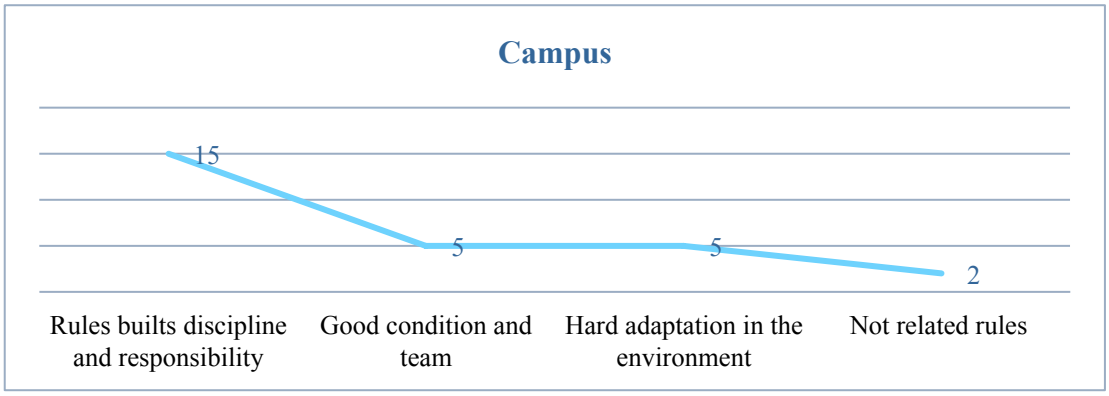


Chart 7 Interview results describes the role impact in campus

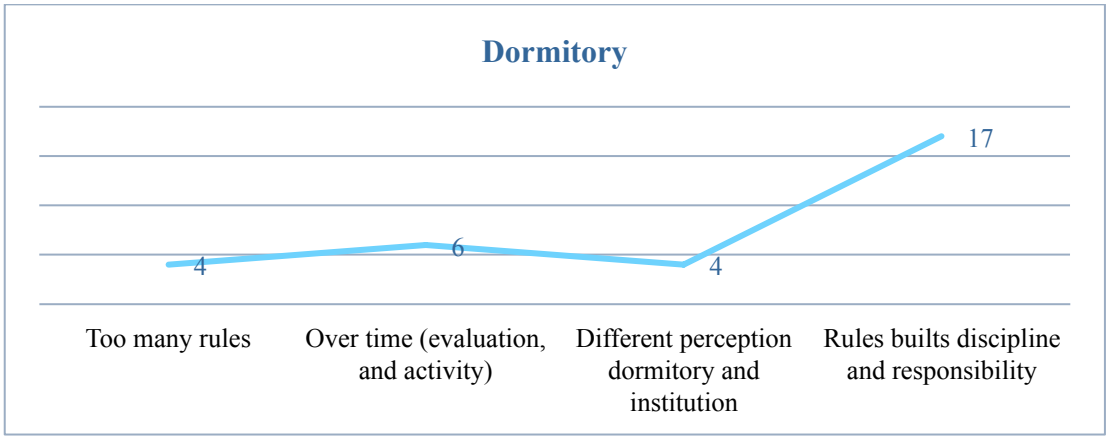


Chart 8 Interview results describes the role impact in dormitory

IT Del provides services to students to be able to live in dormitories. The aims are students can focus on their educational activities. However, with the big number of students around 1500 - 1600, IT Del made policy and academic regulations. Academic regulations applied in the campus and regulations will also be applied in the dormitory. Academic regulations cover all provision which related to students like behaviors, actions, activities as well as prohibitions and sanctions. For dormitory regulations include: 1. Pay boarding fees on time, 2. Obey the rules and guidelines of life in the dormitory, 3. Pay attention to disciplines and security in the dormitory.4. Participate in all activities programs carried out in the dormitory, both routines or unexpected, 5. Exit and enter the dormitory must be acknowledged by the staff. 6.

Maintaining tolerance and cooperation between students. This regulation helps students to be disciplined, carry out obligations and responsibilities, respect each other and be independent.

However, when interviews were conducted there were still has problems and complaints from students about the regulations and policies. Students described too many policies that were not appropriate, activities that exceed the time, the different perspectives between academics and dormitory staff (Chart 9 and 10). This was what made students felt uncomfortable until they resigned from IT Del. On the other hand, this is very influential in the academic process, self-improvement and final grades of students.

Limitation and Recommendation

Analysis of the different institutions, entire lecturers, students, staff material (course), and facilities may show a different picture and problems. But, it still cannot view the full picture in the data presented. More comprehensive analysis factors influencing legitimate peripheral academic participation of students in higher education can be conducted in this way. Follow the coding mechanism and framework of this study (with suitable refinement as suggested) to have a preliminary analysis of the academic participation of students. Another limitation is that we did not analyze how of the class condition So, for future research, interviews (or by other means) with lecturers, students, staff are required to understand how they perform and go on. We hope that this study can give some insights for further analysis of academic participation of students in higher education.

Acknowledgments: Statemant of the framework

Questionnaire for the lecturer and staff

No	Indicator	Statement
1	Punctuality	Lecturer / TA present and finish on time in the academic process
2	Submission of material	Lecturer / TA presents material systematically and clearly
		Lecturer / TA give material according to the lesson plan
3	Interaction inside or outside the class	Lecturers / TA provide free time to conduct guidance outside the classroom/ laboratorium
		Lecturer / TA provides opportunity for question and answer session (discussion)
4	Direction and Attitude	Lecturer / TA gives examples of good attitude and behavior
		Lecturers / TA provide motivation and moral support during the learning process

Lecture Materials and Task

No	Indicator	Statement
5	Clarity of lecture material	The course material is structured and well organized
		Lecture material and practicum are presented in an interesting and easy to understand
		Supporting material for lectures and practicums is given and very helpful
6	Readiness and timeliness of lectures	Lecture material and practicum are prepared and given before class begins
		Sufficient time is given to complete the quiz and exam
		The questions and assignments are in accordance with the right proportion of time
7	Suitability of assignments, quizzes, and exam questions in lectures	Quizzes and exams are given in accordance with lecture material and practicum
		Quizzes and exams consist of easy, medium and difficult categories
		Examples of questions and assignments given in accordance with lecture material and practicum
		Examples of questions and assignments help to understand the concept of the lesson

Lecture Facilities

No	Indicator	Statement
8	Proportional location and amount	Location of the quiz and exam have been carried out in accordance with the proportion of the number of participants
		The number of students influences the learning process
9	Situation and condition of facilities and infrastructure	Situations and conditions in the classroom (temperature and sound) have supported the learning process.
		Student behavior influences the learning process
		The independent hours provided have been implemented and are effective
		Cleanliness and neatness of class have been done
		Facilities in the classroom (PC, Projector, Whiteboard, Writing Equipment, Chairs, Tables and Tools and Practicum Materials) are well available

Non-Academic Facilities

No	Indicator	Statement
10	Complete library facilities	The library has provided facilities (books, computers, and scientific magazines) in full
11	Library services	The library provides a conducive and comfortable learning space
		The library provides a good system and service
12	Academic and non-academic facilities	Internet facilities can be accessed throughout the IT DEL environment and have a good connection
		Talent and interest facilities are well available
		Academic regulations have been applied and are right on target
		Academic activities (Public Lectures, Competitions and Workshops) have been carried out well
13	The attitude and behavior of the party	The unit of familiarity provides examples of appropriate attitudes and behaviors
		The unit togetherness guides students in character development
14	Facilities and terms of relationship	The unit of friendliness applies regulations that suit the needs of students
		The facilities are adequate and proper to be used
		The event has been carried out according to the needs of students with the right proportion of time
		The allocation of familiarity is structured properly
15	Balanced food proportions	Canteen has provided / provided nutrition in accordance with 4 healthy, 5 perfect standards
16	The situation and condition of the canteen	Canteen involves students to prepare dishes
		The cleanliness and neatness of the canteen is in accordance with the established standards
17	Suitability and timeliness of the canteen	Canteen has implemented regulations according to needs
		Canteen provides food on time

References

Ackerman, R.H., Moller, G. & Katzenmyer, M. (1996). Every Teacher as a leader. San Francisco: Jossey-Bass.

Council for Education Policy, Research and Improvement. (2003). Florida Teachers and the Teaching Profession. Teaching Profession Committee. May 2019. Retrieved online on 29 May 2019 at 10.00 am.

Education for All (2005).Understanding Education Quality. Global Monitoring Report, 2005. Retrieved online on 29 May 2019 at 11.00 am.

Hultsch, D. F., MacDonald, S. W., Hunter, M. A., Maitland, S. B., & Dixon, R. A. (2002). Sampling and generalisability in developmental research: Comparison of random and convenience samples of older adults. International Journal of Behavioral Development, 26(4), 345-359.

Kudari, J.M. (2016). Survey on the Factors Influencing the Student's Academic Performance. International Journal of Emerging Research in Management and Technology, 5(6), 30-36.

Laporan mahasiswa undur diri dari Kemahasiswaan IT Del.

Laporan nilai akademik mahasiswa 2014 - 2017. Badan Administrasi Akademik BAAK IT Del

Maganga, J.H. (2016). Factors Affecting Student's Academic Performance: A Case Study of Public Secondary Schools in Ilala District, Dar-es-salaam, Tanzania. University of Tanzania.

Maina, M.J. (2010). Strategies Employed by Secondary School Principals to Improve Academic Performance in Embu West District. Kenyatta University.

Radheshyam H. G., Chandrahas C. H., Rakesh L. H. (2017). Factors influencing academic performance of the students at university level exam: a literature review. International Journal of Research in Engineering and Technology, 6(5).

Srinivas, P., & Venkatkrishnan, S. (2016). Factors Affecting Scholastic Performance in School Children. IOSR Journal of Dental and Medical Sciences, 15(7), 47-53.

Taylor-Powell, E., & Renner, M. (2003). Analyzing qualitative data. Program Development & Evaluation, 1(04)

Contact email : sarimuthiasilalahi@gmail.com
sari.silalahi@del.ac.id

The Using of Guidance Process for Promoting Opportunity of Adolescent Mothers in Udon Thani

Matthaneeya Kaykeaw, UdonThani Rajabhat University, Thailand

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract
The purposes of this study were to study the needs and the guidelines for supporting of opportunities educational, career, and personal and social of adolescent mothers by using of guidance process for promoting opportunity of adolescent mothers. The participants of this research were 6 adolescent mothers by purposively selected that they were early pregnancy before 15 years of age, uneducated, unemployed, and they ask for help in One Stop Crisis Center (OSCC). The results of this research as follows: 1) the adolescent mothers need opportunity educational that they think education very important for well-being. If possible, they need opportunity career and education together with take care of children to grow up, they need to understanding, encouragement, acceptance, and don't add insult to injury from family and social, 2) the guidelines for supporting opportunities educational, career, and personal and social of adolescent mothers as follow: 2.1) give advice education system about fundamental education, non-Formal education, informal education and vocational education, 2.2) give career test and guidelines to know about aptitude for working, 2.3) give information about prevention and solution of adolescent pregnancy problem act, BE 2559 (2016), 2.4) consulting individual and group about encourage to pass the difficult time, 2.5) organize empowerment activities for adolescent mothers to give strength and know about purpose of life. Therefore, this study knows about background of adolescent mothers, the needs of opportunities educational, career, and personal and social and guidelines to supporting of adolescent mothers to live a balanced life.

Keyword: Guidance Process for Promoting Opportunity, Adolescent Mothers, Case Study

iafor
The International Academic Forum
www.iafor.org

Background and Statement of Problem

Problem of teenage pregnancy is regarded as globally important issue. The United Nation set the decrease of pregnancy during the age of 15-19 as Millennium Development Goals (MDGs). Furthermore, Sustainable Development Goals (SDGs) set the decrease of teenage pregnancy between the age of 10-14 and 15-19 to be part of the achievement goal no.3 concerning the assurance for life quality and promotion of good health to all genders according to international goal to be achieved within 2030 (Department of Health, Ministry of Health, 2017). The rate of teenage pregnancy in Thailand had increased significantly during 2000-2012. The pregnant rate of 1,000 teenagers between the age of 15-19 per woman population between the age of 15-19 increased from 31.1 percentage to 53.4 percentage; the pregnant rate of 1,000 teenagers between the age of 10-14 per woman population between the age of 10-14 increased from 0.5 percentage to 1.8 percentage. However, during 2012-2015, the pregnant rate of both groups tended to decrease to 44.8 per 1,000 women population between the age of 15-19 and 1.5 per 1,000 women population between the age of 10-14 in 2015. In 2015, after dividing the health areas into 7 areas, the result found that the rate of teenage pregnancy of 1,000 teenagers between the age of 15-19 was higher than teenagers between the age of 15-19. The health area no.8 (located in Udon Thani Province) was the surveillance area and found the high rate of recurrent pregnancy. The rate of recurrent pregnancy in teenagers between the age of 15-19 tended to increase gradually in the last five years, which were 11.3, 11.8, 11.9, 12.5, and 12.8 percentage during 2010-2014 accordingly. In 2015, the rate of recurrent pregnancy in teenagers between the age of 15-19 decreased slightly to 12.5 percentage (Bureau of Reproductive Health, Ministry of Health, 2015). Based on the birthrate of teenage mothers in Udon Thani, the result found that the birthrate of teenagers between the age of 15-19 per 1,000 women population in 2017 was 2,235 people from the total population of 54,879 people, and the birthrate of teenagers between the age of 10-14 per 1,000 women population in 2017 was 67 people from the total population of 48,588 people, which was regarded as 1.37 percentage. In addition, the birthrate of teenagers between the age of 15-19 in 2016 in Udon Thani after dividing the areas based on sub-district found that the birthrate in Amphoe Mueang District was 69.47 per 1,000 women population between the age of 15-19, which was considered the highest rate in Udon Thani Province (Udon Thani Provincial Health Office, 2017). Teenage pregnancy has led to many problems since teenage parents encounter obstacles concerning graduation and educational opportunity. According to the data from 2013, it showed that 32 percent of teenage parents left school. This could be concluded that teenage gave birth at least 100,000 people per year. Most of them left school and could not continue studying. Moreover, the data from Office of the Education Council reported that the rate of school dropping in primary level during 2005-2012 had increased from 0.9 percentage to 2.7 percentage, from 5.1 percentage to 6.2 percentage in lower-secondary level, and from 4.2 percentage to 6.5 percentage in upper-secondary level (Ministry of Health, Bureau of Reproductive Health, 2016). In addition, the result found that some teenage parents did not continue their study, and forced to leave school, find new school, or leave their job to become unemployed. Some turned into “children raise children” condition. The international study suggested that inequality and unprotection of basic rights of these girls were challenging, and it was important to find the solution for teenage pregnancy including the girls’ lack of education, discontinuing school, being inaccessible to sexual education and information, lack of skills to refuse sexual

relationship or skills leading to building family, and being inaccessible to contraceptive service including sexual harassment. Therefore, having a large number of teenage mothers in Thailand may undeniably lead to the loss of human resource of the country (United Nations Population Fund, National Economic and Social Development Board, 2013).

The researcher is a lecturer major in psychology, and is assigned to teach in the courses of psychology for teacher and guidance, and sexual education at Faculty of Education, Udon Thani Rajabhat University. Furthermore, the researcher is one of the committee members to develop teachers teaching sexual education working with Path2health Foundation and Office of the Basic Education Commission as well as being in charge of academic department (sexual education center) in North-east region including committee member to prevent and solve teenage pregnancy problem in Udon Thani. While being on duty, the researcher observed that although there has been prevention on teenage pregnancy, but there is no concern toward teenage mothers whether they would see themselves in the future, or if there was an opportunity for them, and what direction should the treatment be. In order to receive qualified data and answer those questions, the process of guidance, which was the process to create self-understanding, understanding others, and surrounding, provided five services. Moreover, this study used case study from Individual Inventory Service as a tool to study the needs for opportunity in education, occupation, personal, and society of adolescent mothers. After receiving the data regarding the needs for opportunities, the researcher used Information Service, Counselling Service, and Placement Service as ways to promote opportunities in education, occupation, personal, and society including following-up the treatment by using Follow-up Service.

Objectives of the study

1. To study the needs for opportunities in education, occupation, personal, and society of adolescent mothers in Udon Thani, Thailand.
2. To study ways to promote opportunities in education, occupation, personal, and society of adolescent mothers in Udon Thani, Thailand.

Scope of the study

1. The population of the study was teenagers, who were pregnant under the age of 15 and gave birth during 2015-2017 at Udon Thani Hospital, and lived in Amphoe Muang District, Udon Thani, Thailand.

2. Samples of the study

2.1 Key informants, who were related to the case study, which consisted of husbands, parents, teachers, school executives, village headman, public health volunteers in the village, government officers, psychologists, social workers working under One Stop Crisis Center (OSCC), Ministry of Social Development and Human Security, hospitals, Udon Thani Provincial Social Development and Human Security Office, and Udon Thani Shelter.

2.2 Key informants, who were adolescent mothers in the case study. Six samples were selected using purposive sampling and the following criteria: being pregnant under the age of 15, giving birth at Udon Thani Hospital during 2015-2017,

living in Amphoe Muang District, Udon Thani, asking for assistance from OSCC and Ministry of Social Development and Human Security, discontinuing study, and being unemployed.

Research Methodology

This research was to study the process of guidance to promote opportunities of adolescent mothers in Udon Thani. The study was a qualitative research and used case study approach, which is the process to study the personal detail of a particular person to create self-understanding, understanding others, and the surrounding. Also, the study was aimed to find the treatment in term of prevention, solution, and development in education, occupation, personal, and society. The process of the case study was selecting the participants, collecting data, analyzing data, diagnosing, and providing treatment as well as following-up (Maneesrikum, 1996:58). Furthermore, the researcher set the research plans according to the following objectives.

1. Studying the needs for opportunities in education, occupation, personal, and society of adolescent mothers in Udon Thani

1.1 The researcher had studied from secondary data, which was written in records such as academic documents, books, research papers, dissertations, and relevant electronic documents for preparation and guidance in conducting the study.

1.2 Data collection

1.2.1 The researcher built the relationship with the case in order to introduce herself, inform the objectives of the study as well as maintaining secret and giving gratitude for their participation in this study.

1.2.2 The researcher observed adolescent mothers and people relating to them by using participation observation and non-participation observation together with using other instruments to collect data.

1.2.3 The researchers interviewed adolescent mothers and people relating to them by using semi-structured interview. The interview questions were divided into four parts covering the objectives of the study, which were 1) personal profile and family; 2) circumstance of pregnancy; 3) handling problem and discontinuing study; 4) opinion toward the problem and opportunity as well as the need to receive opportunities in education, occupation, personal, and society.

1.2.4 The researchers visited the participants' homes to study the facts concerning family background and family of teenage mothers by investigating economic background, living environment, and family relationship whether they were relevant or contradict to information given from the interview or other methods of collecting data.

1.2.5 The researcher used life history approach with teenage mothers by asking them to write under the topic "My needs for opportunities" and analyzing their biographies according to Froehlich's theory (1958). Ormission, length, vocabulary, level or depth of expression, organization, gloss, fabrication, appearance, and tonal variations are parts of teenage mothers' biographies that had been analyzed.

1.2.6 The researcher used psychological test.

1.2.6.1 Vocational Reading Test was conducted by referring to the personality theory of John L. Holland, an American psychologist. The researcher used the adapted version of Mr. Ruechuchai Potha in Mae Hong Son Province (Potha, 2015: 1-6). The test consisted of 54 items and divided personality into six types,

which were realistic, investigative, social, conventional, enterprising, and artistic. Moreover, the test consisted of vocational interest test, basic vocational orientation test, and self-confidence test.

1.2.6.2 Transactional Analysis (TA) based on the theory of Eric Berne. The test consisted of 30 items as followed: 6 items of disciplinary parents; 6 items of compassionate parents; 6 items of adultery states; 6 items of children's natural state; and 6 items of children's adapting state. The researcher used TA adapted by Sucheera Patrayutthawat (2005).

1.2.6.3 WHOQOL-BREF-THAI developed by Suwat Mahatnirunkul *at el.* (1997: 1-3). The questionnaire was used for people during 15-60 years and consisted of questions concerning four domains of life quality, which were 1) physical domain; 2) psychological domain; 3) social relationships; 4) environment.

1.2.6.4 General Health Questionnaire in Thai version (Thai GHQ 12-28-30-60). The questionnaire was developed by Thana Ninchaikovit *at el.* (1996). The questionnaire covered four aspects, which were unhappiness, anxiety, social impairment, and hypocondriasis.

1.2.6.5 Center for Epidemiologic Studies-Depression Scale (CES-D) in Thai version, which was developed by Assistant Professor Dr. Aumaporn trangsombat, Dr. wachira Lapboonsap, and Piyalamporn Havanon (Transombat *at el*., 1996). The test was used for people during 15-18 years and consisted of 20 questions concerning the depression occurred during the past week.

2. Studying ways to promote opportunities in education, occupation, personal, and society of adolescent mothers **in Udon Thani**

2.1 Data Analysis: The researcher analyzed the data using data triangulation from the data collection such as home-visiting and the interview. The correctness of data was reviewed and collected according to the objectives of the study. Moreover, the data was divided according to category to investigate the relationship of the circumstances in order to see the overall study.

2.1.1 Daily analysis is the data collected daily from the interview, observation, home-visiting, biography, and test. The researcher examined the data by using categorical writing. If some data was missed, the researcher would know and find more additional information.

2.1.2 Total data analysis is the analysis of data after the data is already collected by using the data from daily analysis to categorize and compare the relationship between social context and culture based on theory to explain the existing circumstances.

2.2 Diagnosis: The researcher used the result analysis to consider and diagnose the cause or the background of the problem including positive behaviors, which lead to the right and suitable direction to solve problems.

2.3 Treatment: The researcher considered ways for promoting opportunities in education, occupation, personal, and society appropriately. Furthermore, the researcher might set both main solutions and secondary solutions for proceeding. This might help to save the cost of both labor and time. Since some issues might not be according to the hypothesis, therefore the primary solutions might not be effective and the secondary solutions are needed. However, if both solutions were impractical, or could not be solved, there would be a review and gathering of additional information.

2.4 Follow-up: The researcher followed up the treatment after one month of receiving treatment. The follow-up ways were home-visiting, interview, observation,

and telephone call to investigate whether the treatment could prevent future problems, and problem of those who were provided education decreases and that they could proceed their plan, adapt, and live in the society happily. Furthermore, the follow-up was aimed to improve the treatment in case that it was not suitable.

Results/ Research Findings

From the study of the needs for opportunities in education, occupation, personal, and society of adolescent mothers in Udon Thani, can be concluded as followed:

1. The need for educational opportunity

1.1 From the interview and observation from people relating to the case study found that there was a need for educational opportunity in the form of non-formal and informal education.

1.2 Case Study: From the interview, observation, home-visiting and biography of the cases found that there were five cases, who needed educational opportunity in the form of non-formal and informal education. The participants expected to receive long term of educational opportunity in upper-secondary school level, Practical Nursing Program (Intercare School), bachelor degree, and police school. There was one case, who did not want to pursue further study.

2. The need for occupational opportunity

2.1 From the interview and observation from people relating to the case found that there was an expectation to be teacher, police, and practical nurse. However, their occupational expectation had changed after pregnancy since they did not see any occupational opportunity. At the present, some interviewees would like their cases to be able to raise kid as well as work, whereas some did not want their case to work at all.

2.2 Case Study: From the interview, observation, home-visiting and biography of the case found that the participants dreamed to be teacher, police, and practical nurse before the pregnancy. At the present, three cases would like to receive occupational opportunity that allowed them to have income and raise their kid. However, three cases did not want to receive any occupational opportunity. From Vocational Reading Test found artistic, social, and conventional personalities along with data and tool aptitudes.

3. The need for personal and social opportunities

3.1 From the interview and observation from people relating to the case found that there was a need to have the case adapt into motherhood as well as having skills to raise a kid, understanding the development, being responsible, controlling self-emotion, and needing fund supported from the government.

3.2 Case Study

From the interview, observation, home-visiting and biography of the case found that the participants needed opportunity from their family in term of understanding, supporting, cheering, and talking nicely.

From the psychologist test, Transactional Analysis (TA) found that the case study consisted of the following personalities: Personality A was low, which represented the lack of reasons, the use of emotion, being dependable, unconfident and unintelligent; Personality AC was high, which represented being compromise, unconfident, nervous, and afraid of future events; Personality FC was high, which represented being fun and friendly, the lack of concentration, being unreliable and flirting, the lack of life security, being irresponsible and easily changeable.

WHOQOL-BREF-THAI refers to acknowledgement of life quality in physical,
mental, social relationship, and self-environment aspects (Mahatnirunkul *at el.,* 1997: 1-3). The result found that the average score of life quality of five cases were moderate, and the average score of life quality of one case is high.

General Health Questionnaire (Thai GHQ 12-28-30-60), which examines the mental health problem, found that five cases dealt with mental health problem, whereas one case had no mental health problem.

Center for Epidemiologic Studies-Depression Scale (CES-D) in Thai version found that four cases dealt with depression and should be diagnosed for treatment, whereas one case was in severe depression and another one case was not in the state of depression.

From the study of ways to promote opportunities in education, occupation, personal, and society of adolescent mothers **in Udon Thani, can be concluded as followed:**

1. Ways to promote educational opportunity for those relating to the cases and the cases were group guidance and single guidance by providing information service and placement service regarding further study, non-formal and informal education, formal education in school and technical college including Act For Prevention And Solution Of The Adolescent Pregnancy Problem, B.E. 2559 (2016).

2. Ways to promote occupational opportunity for the cases was to provide information service regarding career path based on the questionnaire, online job, and part-time job in the city.

3. Ways to promote personal and social opportunities

Provide advice concerning adolescent psychology to people relating to the cases.

Provide group guidance and single guidance to the cases by giving information about Government-Paid Paternity Leave, funding for special case from Udon Thani Shelter, child's development. The group guidance activity was held for two days to help teenage mothers. The activities consisted of review life from past to present, finding needs and setting the priority, relaxing from stress, asking for assistance from many departments, and empowerment.

Discussion

From the study of the needs for opportunities in education, occupation, personal, and society of adolescent mothers in Udon Thani, can be discussed as follows:

1. According the need for educational opportunity, the result found that people relating to case study and the cases needed educational opportunity for good working career in the future. Furthermore, educational opportunity also referred to educational equality. Section 10 in National Education Act stated that educational management should allow individual to have the same right and equality to receive at least twelve years of qualified basic education. In case that individual is not able to depend on themselves, or lack of guardians or opportunity, those individuals should receive special basic education (National Education Act B.E. 2542, 1999)

Moreover, the result also found that the case study needed Non-formal Education (NFE), which referred to systematic learning management that is not regular hour in school. This non-formal education provided service to other groups of population including both adult and children. It aimed to help the target group develop their life and social skills by trying to create sustainable and life-long education. Therefore, this is considered providing opportunity for those who lack or miss to study in schools, and allowed then to seek knowledge, practice skills, and create attitudes that are needed in living as well as adapting (Thammavithikul, 2010).

2. According to the need for occupational opportunity, the result found that some cases did not want to have an occupation since their children were too young, whereas some cases wanted to work while raising their children at the same time, because they had more responsibilities and did not want to be the burden of their parents. However, since they were young, a chance to find a job was difficult. Therefore, they tended to plan for further study along with planning for a job at the same time. According to Ngernthong, Kantaraksa, Chalermsuk, 2015: 60), teenage mothers planned their further study and working in appropriate time, but needed assistance from their parents.

3. The need for personal and social opportunities
According to people relating to the case study, they wanted the case to be responsible, mature, able to control emotion, and understandable toward children as well as needing government fund. Kanjanavetang (2015:102) stated that children, who were born from teenage mothers, usually dealt with development and growth problem. Also, the children were abandoned since the mothers lacked of skills to raise children. Therefore, there should be advice to raise children using breast milk, how to store breast milk, and having the father as supporter in raising children. Moreover, relevant department should be cooperated to provide help to teenage mothers from time to time in the case of crisis. Furthermore, the cases stated that they needed financial opportunity from the government. According to Kanjanavetang (2015:102), the financial assistance and response to the needs should be provided to teenage mother and her family.

According to the case study, the result found that teenage mothers had depression and faced with mental problem. Wongniyom & Apinuntavechv (2014:203) explained that the increasing of teenage pregnancy affected physical, mental, emotional, and social problems of both teenage mothers and her children both during pregnancy and after giving birth. The infant usually weighed less than the average, preterm delivered, and died after birth. 10 percentage of the infant was abandoned. As the effects toward teenage mothers, they usually encountered depression after four years of giving birth. At the present, the rate of teenage mothers having depression is 8.8 percentage. Therefore, the cases need opportunity from family to understand and support them. Kanjanavetang (2015:102) suggested both sides participation to solve problems, mental development, building relationship with children, practicing nursing skills, and effective long-term contraception to prepare teenage mothers when confronting problems and having mother's role.

From the study of ways to promote the opportunities in education, occupation, personal, and society of adolescent mothers in Udon Thani, can be discussed as follows:

1. Ways to promote educational opportunity were to provide information concerning formal and non-formal education including the curriculum, expenses, job's progression, benefits and limitations. Bowman (cited in Srirueng, 2001), had analyzed the opportunity for education that educational opportunity means providing enough information to children for selecting school as well as deciding when to continue studying or work. Norris *at el.* (1960: 24-29) stated that educational information is to provide information and detail that are correct and useful to create education opportunity for both present and future. However, in order for children to use the above information usefully and to make a decision appropriately, the researcher also provided information of Act for Prevention and Solution of the Adolescent Pragnancy Problem B.E. 2016.

2. Ways to promote occupational opportunity are to provide occupational guidance that allowed teenage mothers to select the occupation based on their aptitude and ability by using The Vocational Reading Test. Freeman (1966) stated that the Vocational Reading Test is standardized tool made to measure characteristics objectively by using verbal and nonverbal responses from the samples. Allowing the cases to realize their interest and aptitude is called personal arrangement, which arrange a person appropriately in the position based on his or her intelligence, interest, characteristic and aptitude so that the person can work suitably. This study helped the cases to continue further study in lower-secondary and upper-secondary levels of both formal and non-formal school. Furthermore, it helped the cases to receive assistance form government unit as well as adapting as teenage mothers. Junlasup (2015: 291-292) explained the meaning of personal arrangement that it is to arrange a person suitable to his or her intelligence, interest, characteristic, aptitude, ability, health condition, economic status, general condition, and social needs regarding educational and occupational aspects.

3. Ways to promote personal and social opportunities were to provide counselling that allowed people to adapt themselves better while living with the family, working, studying. Providing personal and social counselling helps improving mental health, creating self-understanding, and accepting both themselves and others. Those who received counselling would have an opportunity to consider their needs, interest, and be able to make the decision by themselves. Kaikaew (2016:315) provided definition of counselling that it is the process to help people by using two-way conversation, which is the counsellor and those received counselling. The process creates good relationship and allows those received counselling to understand their problem as well as making decision by themselves. However, the counsellor must have knowledge and understand the process, concept, and skill for providing help effectively. In this study, the researcher used individual counselling, which was a private counselling that allowed both sided to help each other solve problem. Also, group counselling, which is the process to build relation among people in the group, were used to allow the members to understand themselves and accept both self- and other behaviors. The atmosphere of the counselling was trustworthy, which helped leading to self-discovery and self-understanding along with the change of desire behaviors (Mahler, 1969:11).

Acknowledgment

Thank you to case Study and all people relating to teenage mothers. Also, thank you to supporting fund from Institution of Research and Development, Udon Thani Rajabhat University, as well as lecturer who provide information and lecturer from group counselling.

Reference

Kumsom K. (2014). Handout for Teacher Psychology Course. Udon Thani Province: Faculty of Education, Udon Thani Rajabhat University.

Department of Health, Bureau of Health Promotion. (2015). Reproductive Health in Adolescent and Youth B.E. 2015. Analysis and Report by Bureau of Reproductive Health, Department of Health. Bangkok: Bureau of Health Promotion.

Department of Health, Bureau of Health Promotion. (2016). Reproductive Health in Adolescent and Youth B.E. 2016. Analysis and Report by Bureau of Reproductive Health, Department of Health. Bangkok: Bureau of Health Promotion.

Department of Health, Ministry of Health. (2017). Strategic Plans of Department of health B.E. 2553-2556. Draft of Strategic Plan for Prevention and Solution of The Adolescent Pregnancy Problem in National Level B.E. 2560-2569. Act for Prevention and Solution of The Adolescent Pregnancy Problem, B.E. 2559 (2016). Bangkok: Bureau of Health Promotion.

United Nations Population Fund, National Economic and Social Development Board. (2013). Challenges of Teenage Mothers in Teenage Pragnancy. Bangkok: Advance Printing Co., Ltd.

Wongniyom K. & Apinuntavech S. (2014). The Prevalence and Associated Factors of Depression in Teenage Pregnancy at Siriraj Hospital. Journal of the Psychiatric Association of Thailand. *59*(3): 195-205

Kanjanavetang J. (2015). Research Study: Development of Desirable Service Model for Promoting the Health of Teenage Mothers and Family. Phitsanulok Province: Naresuan University.

Maneesrikum T. (1996). Data Collection. Department of Guidance and Educational Psychology, Faculty of Education, Srinakharinwirot University. Bangkok: Srinakharinwirot University.

Prasert N. & Vintavichai J. (2005). Principles for Guidance. Bangkok: Faculty of Education, Chulalongkorn University.

Junlasup N. (2015). Guidance for Learner's Development. Songkla: Namsilp Advertising Co., Ltd.

Act for prevention and Solution of the Adolescent Pragnancy Problem B.E.2559 (2016). Act for prevention and Solution of the Adolescent Pragnancy Problem B.E.2559 (Online). Retrieved from http://web.krisdika.go.th/data/law/law2/%A1158/%A1158-20-2559-a0001.htm

National Education Act B.E. 2542. (1999). National Education Act B.E. **2542** (Online).
Retrieved from http://www.moe.go.th/main2/plan/p-r-b42-01.htm.

Ngernthong P., Kantaraksa K., Chalermsuk N. (2015). Introduction to Breast Feeding for Teenage Mothers: Systematic Reviews (online). Retrieved from https://www.tci-thaijo.org/index.php/cmunursing/article/view/57300/47515

Kaikaew M. (2016). Handout for Teacher Psychology Course. Udon Thani Province: Faculty of Education, Udon Thani Rajabhat University.

Jarujutarat Y. (2017). Art Therapy for Violent Prevention toward Children and Youth in Justice Process. Saraburi Province: Department of Juvenile Observation and Protection, Ministry of Justice.

Potha R. (2015). Vocational Reading Test. Handout for Educational Guidance and Occupational Guidance to Service Receivers. Lampang Province: Lampang Labour Market Information administration Center.

Srirueng W. (2001). Nationality Less Children's Education Right, in Case Study of Ban Pong Noi School, Amphoe Muang, Chiang Mai Province: Chiang Mai Province: Graduate School, Chiang Mai Province.

Ministry of Public Health. (2017). Report of reproductive Health in Teenagers and Youth B.E. 2559-2560. Bureau of AIDS, TB, and STIs: Provincial Committee of Act for prevention and Solution of the Adolescent Pragnancy Problem on November 14th, 2017.

Patrayutthawat S. (2005). Manual for Psychological Measurement. 3rd Edition. Bangkok: Department of Psychiatry, Faculty of Medicine Siriraj Hospital, Mahidol University.

Mahatnirunkul S. (1997). Comparison of the WHOQOL-100 and the WHOQOL-BREF (26 items). Chiang Mai Province: Suan Prung Hospital.

Moonha S. (2013). Educational Promotion and Role Change of Teenage Mothers in Isan Society. Karasin Province: Rajamangala University of Technology Isan, Karasin Campus.

Thammavitikul A. (2010). Non-formal and Informal Education Nowadays. Retrieved from https://panchalee.wordpress.com/2010/12/21/nfe_ac1/.

Trangsombat A. & Likanapichitkul D. (1996). Depression in Children: A Study of Children's Depression Inventory. Bangkok: The Psychiatric Association of Thailand.

Frochlich, Clifford P. (1958). Guidance Service in School. New York: Mc Graw-Hill.

Freeman, Frank S. (1966). Theory and Practice of Psychological Testing. New York: Holt, Rinehert.

Mahler,Clarence A. (1969). Group Counseling in the Schools. Boston: Houghton Mifflin.

Norris W. Zeran F.R. & Hatch R.N. (1966). The Information Service in Guidance. 2nd Chicago: Rand Mc Nally & Company.

Contact email: pom105@hotmail.com

Fostering Outgoing Mobility by Implementing an Innovative Online Platform for Partner University Allocation. ITMO University Educational Design Practices

Ekaterina Rassolenko, ITMO University, Russia
Aleksandra Krivonogova, ITMO University, Russia

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract
Within the Russian internationalization strategy for increasing incoming and outgoing academic mobility indicators, ITMO University utilizes a variety of tools to match the objective. Increased number of ITMO students aimed at spending a semester abroad and the constantly growing number of 200+ active academic partners worldwide become a challenge which calls an innovative solution. While students are struggling to cope with a large amount of information in order to make the choice of a host university, ITMO International Office staff spends significant time on live consultations to help students find a matching curriculum at a partner university. The current circumstances generate a need to mechanize processes for outgoing mobility to minimize time devoted to consultations and help students to reduce the list of suggested universities. Therefore, in September 2019 ITMO International Office introduced a demo version of an innovative platform that applies several filters diminishing the number of exchange destinations in accordance with the students' study level and major. In order to evaluate the platform's impact upon outbound student mobility, a pilot case study was conducted both with outgoing exchange student and International Office staff. The data collected have shown the positive dynamics in students' motivation and general awareness regarding exchange studies abroad. Furthermore, the study says that the platform facilitated students' better choice of a host university. However, compared to the previous semester ITMO University staff members declare to have had minor changes in consulting hours spent on assisting students in university allocation.

Keywords: student exchange, technology, outgoing mobility, application.

iafor
The International Academic Forum
www.iafor.org

Introduction

Within the Russian internationalization strategy, that was intensified 7 years ago, ITMO University strives to comply with the requirements of the governmental educational plan. In 2013 Ministry of Science and Higher Education of the Russian Federation launched the "5 to 100" project intending to get 5 Russian universities to enter World Top 100 QS or Times Higher Education rankings by the year 2020, which is reflected in the name "5-100". The maximization of leading Russian universities' competitiveness in the international education and research market is affirmed as the main "5-100" goal, according to the project's official website.[1]

ITMO has been a member of the "5-100" academic excellence project from its beginning. It was chosen together with other 13 Russian universities to enter the project on a competitive basis. In the project's framework, annually ITMO team presents to the board of the International Council of Russian Ministry of Higher Education the report on the results and the committee, in turn, evaluate the way ITMO has fulfilled the project goals through the last year. Being a highly scored university-leader guarantees stable greater financial support from the government. The "5-100" excellence project sets various strategies to be implemented by the top Russian universities. The most topical strategy in the research framework states the following:

'Putting into force a number of international and internal academic mobility programs for faculty members and researchers (internships, advanced training, professional re-training, exchange programs, etc.)'.[2]

Therefore, the "5-100" membership provides outgoing academic mobility (OAM) with a financial pillar to match the objective. Since ITMO utilizes a variety of tools to improve its OAM, on the one side, the number of students willing to spend a semester abroad is growing rapidly. The situation is to be handled by ITMO staff responsible for OAM.

On the other side, the International Office has established 200+ active academic partnerships which means 200+ partner university destinations for ITMO students. Consequently, according to the undertaken study, a significant amount of time is spent on live consultations of students, who are to find a curriculum in a partner university that matches their curriculum at ITMO. Moreover, students find it challenging indeed to cope with a large amount of information they have to harness in order to make their prior choice.

As a result, the current circumstances generated a need to mechanize processes for outgoing mobility to cut off time spent on consultations and to help students reduce the list of suggested universities.

Online Application for Partner University Allocation

[1] "5-100" Russian Academic Excellence Project by Ministry of Science and Higher Education of the Russian Federation (n.d.). Retrieved from https://5top100.ru/en/about/more-about/

[2] "5-100" Russian Academic Excellence Project by Ministry of Science and Higher Education of the Russian Federation (n.d.). Retrieved from https://5top100.ru/en/about/more-about/

International Office staff accepted the challenge correspondingly and came up with the solution to create an online application advisor in the collaboration with ITMO programmers. The application is to shorten the list of appropriate partner universities in accordance with data inserted by a user.

By the end of February 2020, we have already had two iterations, the pilot-version and an upgraded one. The demo-application has both a full and mobile versions. The demo includes 3 filters: Language, Faculty, Degree. Moreover, it has one search line in case a student is interested in a specific university. In the 2nd iteration, a Region was added. Now instead of scrutinizing the whole list of universities, a user only fills in the relevant data and gets a shortened list of suggested universities to be considered.

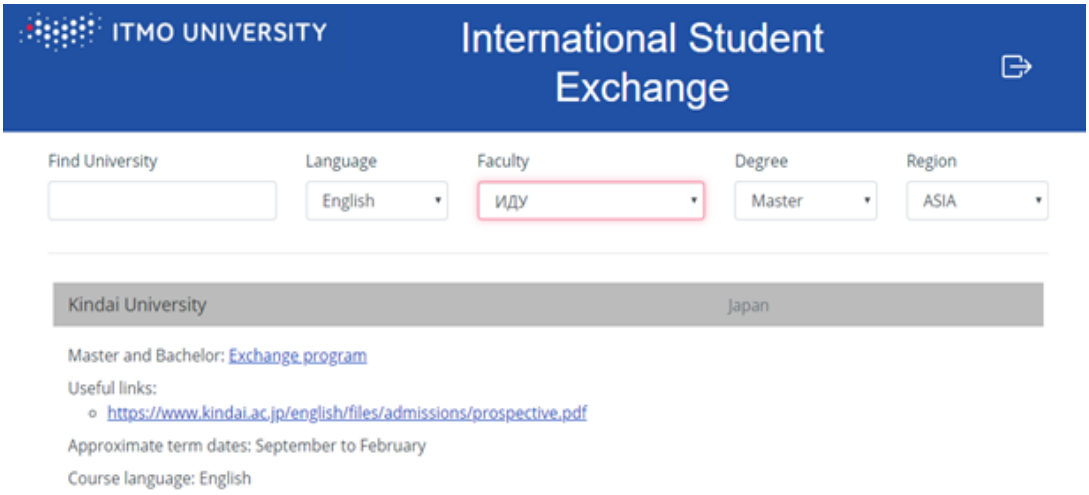


Figure 1: Application interface

After the launch of the demo version, there was a need to assess its effectiveness and influence on the working process of OAM staff as well as the general development of OAM. Therefore, a case study that examines the quality indicators was conducted.

Research methodology

In order to evaluate the efficiency of the application, a pilot case study was conducted in February 2020 at ITMO University, Saint Petersburg, Russia. Both ITMO students and international office staff took part in the study. The qualitative research method was adopted in order to better assess students' and staff members' perceptions toward the application for partner university allocation. A total number of 30 participants were enrolled: 25 students and 5 staff representatives that account for 100% of employees involved in outgoing mobility.

Students were voluntarily enrolled in the study via an announcement at the ITMO website. Students were surveyed with google forms and interviews. Both google forms and interviews were prepared in English. English was deliberately chosen to be the interview language since it is one of the eligibility criteria to be nominated for the exchange semester. The google forms were used to obtain students' consent to the research and to receive initial information on their perception towards student exchange. Only students who gave positive or neutral responses to the question

"would you like to study an exchange semester?" were enrolled as study participants. Gender representation of the interviewed participants accounted for 68% of females (17 people) and 32% of males (8 people). At the interview, each participant was asked four questions that took an average of 5 minutes to answer. First two questions were related to choosing a university for exchange: "How do you choose a host university?" and "What are the challenges, if any, of choosing a host university?". The other two questions were related to the application. Students were offered to look at the web application and test it on their phones, after that the following questions were asked "What do you think this application is for?" and "What is your perception toward the application?". All interview answers were recorded upon the oral consent of each participant.

Staff members were surveyed with interviews conducted in English. In total 2 male and 3 female staff members took part in the interview. The average time spent on the interview per participant was 5 minutes. Employees were asked three questions, two of them accounted to time that staff members spent on assisting students in choosing a host university: "Approximately how much time per day do you spend on consulting students regarding choosing host universities?" and "What are the challenges, if any, of assisting students in choosing host universities?". The other question aimed at discovering participants' opinion on the application: "What is your perception towards the application?". All participants gave oral consent to the audio recording of their answers.

Thematic analysis was applied to analyze both students' and staff members' perception towards the application, and the challenges experienced while choosing/recommending a host university. Answers were first coded and then assigned to the corresponding group identified by code.

Discussion

1. Students

The number of male and female participants who filled in the google form was 14 and 17 correspondingly. According to the questionnaire, 6 male participants did not give their consent to be interviewed while all the female participants agreed to take part in the study. Among 25 interview participants, 21 expressed interest in studying an exchange semester, and 4 were not sure if they would like to go for exchange. Among those 4 participants who did not demonstrate confidence 3 doubted because of doing the final year of their degree (4th year of Bachelor's degree or 2nd year of Master's degree); one student was not sure because of working part-time.

Students gave various answers on how they would be choosing a host university: the majority (13 people) said they would be deciding based on a country. Hence, 8 of them already knew the country they wanted to go to, other 5 participants highlighted only certain regions: "I want to go somewhere far", "I want to go to Asia because I have never been there before", and "I want to go to Europe because it is close to home". 7 participants mentioned that they would ask ITMO outgoing mobility staff to help them choose a host university. 3 participants said they would seek the advice of students who had already been to exchange and 2 people said they would look on the Internet and check available information. Based on the students' answers to the first

question, 13 out of 25 students would not request the assistance of the international office in the first place appealing to other resources such as Internet, networking and personal interests. The other 12 students did not seem to evidently demonstrate the choice of a host university and/or a study destination and, therefore, are likely to address ITMO coordinators for help. Therefore, it is considered important to facilitate students' choice, and further develop the application to enlarge the number of students who feel confident and comfortable choosing a university without coordinators' help.

5 students believed that there were not any challenges in choosing a host university. 10 students said that the list of universities was too big and, therefore, it was hard to find a matching program at a host university. Money issue was considered challenging by 5 students, other 5 referred to language barriers since they did not speak national languages. In the framework of the last question, the "language" code included the following answers: "The website is only in Chinese", "Most of the programs are offered in Spanish (or French) language", and "Very few people speak English in there".

Most of the students (20 people) gave the correct answer to the question "What do you think this application is for?" - for choosing a partner university. However, 5 other participants supposed that the application was for submitting a request form for the exchange semester. Interestingly, 10 students had seen and tried the application before the interview.

96% of students (24 people) demonstrated positive perception towards the application using the following descriptive words: "helpful", "useful", "easy" "comfortable" and "nice". 1 student answered, "I do not know what to say about the application", this answer was assigned to neutral. 32% of students (8 people) who utilized positive descriptive words also would like to change or add some application's features. Therefore, 4 out of 8 students wanted to have a "search" button to press since they could not notice the universities' list updating automatically upon filling in each filter. 3 out of 8 would prefer to have a comment section to ask additional questions. 2 out of 8 would like to use a mobile application instead of the web application, and 1 out of 8 would like to see another layout.

2. Outgoing Mobility Staff

All the outgoing mobility coordinators stated that 20% to 30% of their working time was devoted to helping students choose a host university. Moreover, participants highlighted that about 15% of students came for repeated consultations regarding choosing a host university. Staff members found it challenging and time consuming that the majority of students preferred talking in person rather than accessing available information remotely on the ITMO's website and other Internet resources. Herewith, according to the staff and student interviews, at least 30% of students coming for consultations were unlikely to access available information on exchange beforehand.

According to the interview, 100% of the ITMO outgoing mobility staff members anticipated positive changes in the forthcoming nomination period when the application would be updated and linked to the personal accounts of students. The latest application update was expected to "better facilitate" (participant 1) students'

choice of a host university, make it "more precise" (participant 3) and, therefore, "more reliable" (participants 2, 3 and 5). 4 out 5 staff members also expected to reduce working time spent on live consultations over the next year.

It is acknowledged that the participants' answers and perceptions towards the application could have been influenced by the presence of the interviewer. Herewith, a relatively small participant sample may not precisely depict the real situation. Moreover, 22 out of 25 students were not native English speakers that could affect the cohesion and coherence of their answers. In order to enhance research reliability a bigger scale research will be conducted both in English and Russian languages in the field within the next several years to test OAM coordinators' hypotheses and to evaluate the application's efficiency and its impact upon fostering outgoing mobility.

Conclusion

Despite mostly positive study results, there are open-ended issues and growth zones in the application that are to be considered both in further research and application development. However, the case study of the demo version implies to observe and reflect changes and respondents' perception all along the way. The application updates aspire to guide users by reducing a list of partner universities to top five most suitable choices for each student. Herewith, the application should soon be linked with students' personal accounts and, therefore, it will automatically access and consider such necessary data as GPA and level of foreign language proficiency. It is believed that the implementation of these indicators will make the application a more reliable advisor for those who aim to spend a semester at ITMO partner universities. Yet a recently conducted survey states that even the demo version of the application facilitated a choice of a partner university. The authors believe that interviewing a bigger number of respondents will show a clearer picture of the application's effectiveness in terms of university allocation.

Furthermore, according to ITMO International Office staff members, they still spent significant time on student consultations which showed minor changes in comparison to previous semesters. The absence of positive outcomes may be caused by several reasons. Firstly, being currently launched, the application may not have enough time to bring changes. Secondly, the demo version may not provide enough information for students to make a final decision. Lastly, the issue may refer to a bigger socio-cultural field within one culture where life consultations are a more convenient form for getting necessary information than self-service search using the Internet and available information.

Wherever further research leads, it is of high importance to facilitate students' choice, and further develop the application in order to enlarge the number of students willing to do an exchange semester.

References

"5-100" Russian Academic Excellence Project by Ministry of Science and Higher Education of the Russian Federation (n.d.). Retrieved from https://5top100.ru/en/about/more-about/

Contact email: e.rassolenko@itmo.ru

The 21st Century Skills of School Administrators under Udon Thani Primary Education Service Area Office

Phongnimit Phongphinyo, Udon Thani Rajabhat University, Thailand

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract
The purposes of this research were 1) to study the 21st century skills of school administrators, 2) to study the current and desirable conditions of the 21st century skills of school administrators, and 3) to study the priority needs of the 21st century skills of school administrators under Primary Education Service Area Office (PESAO) in Udon Thani, Thailand. The study was a mixed method research and consisted of 2 phases as follows; 1) study the 21st century skills of school administrators by documentary analysis and semi-structured interviews with 9 experts, 2) study the current and desirable conditions of the 21st century skills of school administrators by 260 school administrators using a questionnaire and prioritize needs by $PNI_{Modified}$ technique. The results of this research were as follows: 1) the 21st century skills of school administrators consisted of five skills; management skill, technology and communication skill, thinking skill, participation and teamwork skill and self-development skill, 2) The current condtition of the 21st century skills of school administrators were at the high level and the desirable condition was at the highest level and 3) The priority needs of the 21st century skills of school administrators found that the skill of technology and communication was the highest on the index, management skill as second and the lowest on the index was self-development skill.

Keywords: School administrator in the 21st century, Skills of school administrators

iafor
The International Academic Forum
www.iafor.org

Introduction

What is a school administrator?

School administrators work in schools, but not as teachers. They are responsible for overseeing the administrative duties at schools from preschool through post-graduate levels. An educational administrator ensures a safe and productive learning environment for the students and faculty at their institution. They manage routine activities and provide instructional leadership at these institutions (https://www.careerexplorer.com/careers/education-administrator/). A school administrator needs to be a leader, organized, and committed to the job. A school administrator may be responsible for setting a curriculum, organizing professional development, creating master schedules, observing and mentoring staff, as well as completing office or clerical tasks as needed (https://www.teacher.org/career/school-administrator/). Therefore, a school administrator is a leader, one who can delegate as needed, but keeps things organized and calm in the case of emergency. The administrator needs to be a boss, disciplinarian, organizer, and leader.

What does a school administrator do?

School administrators work in every level of education. They may direct programming, hire and supervise staff, manage budgets, and make decisions that affect the academic community. They are also in charge of developing a direction and mission for the facility at which they work. For schools, this job is usually the role of a principal or assistant principal. For private schools and businesses, the job may be as a director of programs or head master (https://www.careerexplorer.com /careers/education-administrator/). Making policies and procedures and setting educational aims and standards is the responsibility of an education administrator. They act as a supervisor for managers and support other faculty. An educational administrator ensures a safe and productive learning environment for the students and faculty at their institution. Budgets, logistics, schedules, disciplinary actions, evaluations, and public relations fall under the purview of educational administrators. Administrators ensure teachers have the equipment and resources necessary to deliver educationally effective curriculum. They also have a hand in matters like planning events and implementing curriculum. Educational administrators provide leadership and lay out optimistic goals and visions for the institutions they serve. They must ensure that their school follows regulations set by local, state, and federal authorities. Every person who works for a school, from teachers to custodial workers, reports to an educational administrator. (https://education.cu-portland.edu/blog/teaching-careers/educational-supervisor/) Therefore, the summary of the school administrators' work is as follows:

- Evaluate and standardize curriculum and teaching methodologies
- Recruit, hire, train, and dismiss staff
- Communicate with families
- Lead practices for achievement of high academic standards
- Meet with administrative communities, superintendents, and school boards as well as local, state, and federal agencies
- Monitor financial affairs, including budgets and purchasing of school expenses

- Conduct teacher and staff evaluations to ensure proper implementation of curriculum
- Represent and maintain school image and reputation
- Adjudicate appropriate discipline for delinquent students
- Support faculty with training, enrichment, and goal-setting
- Complete job functions on computers using online communications, spreadsheets, word processors, and other automated tools
- Communicate with parents regarding failing grades or disciplinary issues
- Supervise care of the facility for safety and quality of physical condition
- Ensure compliance with local, state, and federal standards
- Attend school-related events on weekends and evenings
- Prepare for the upcoming school year during the summer

Key Skills and Responsibilities of a school administrator

These professionals face different kinds of challenges on a regular basis, so they need to learn how to adapt quickly, communicate effectively and think critically. Administrators often serve as a mediating force between students, teachers, parents and third parties. They seek out opportunities to enrich the overall educational experience of students as well as management strategies to increase efficiency within the organization itself. Therefore, the skills and responsibilities of the school administrators that we need are:

The skills of the school administrators:

- Excellent spoken and written communication skills
- Methodical and well-organized
- Able to work accurately and pay attention to detail
- Confidence with figures and Good ICT skills
- Able to relate well with pupils, teachers and parents
- Able to priorities work
- Sensitivity and understanding
- To be flexible and open to change
- To be thorough and pay attention to data

The responsibilities of the school administrators:

- Handling relations with parents, students, employers, and the community
- Managing budgets and ensuring financial systems are followed
- Overseeing record-keeping
- Managing student services such as guidance programs
- Training, supervising, and motivating faculty including teachers and auxiliary staff
- Working on committees including academic boards, governing bodies and task groups
- Assisting with recruitment, public or alumni relations and marketing activities
- Providing administrative support to an academic team of lecturers, tutors or teachers
- Drafting and interpreting regulations and dealing with queries and complaints procedures
- Maintaining high levels of quality assurance, including course evaluation and course approval procedures
- Contributing to policy and planning

- Purchasing goods and equipment, as required, and processing invoices
- Liaising with partner institutions, other institutions, external agencies, government departments and prospective students

Skills of a School Administrator in the 21st Century

The 21st century is the current century of the Anno Domini era or the Common Era, in accordance with the Gregorian calendar. It began on January 1, 2001, and will end on December 31, 2100. It is the first century of the 3rd millennium. It is distinct from the century known as the 2000's, which began on January 1, 2000 and will end on December 31, 2099. (https://www.definitions.net/definition/21st+century) The term 21st century skills refers to a broad set of knowledge, skills, work habits, and character traits that are believed by educators, school reformers, college professors, employers, and others to be critically important to success in today's world, particularly in collegiate programs and contemporary careers and workplaces. Generally speaking, 21st century skills can be applied in all academic subject areas, and in all educational, career, and civic settings throughout a student's life. (https://www.edglossary.org/21st-century-skills/) Therefore, effective leaders in 21st century schools consider instructional requirements, the expertise of teachers, and the ultimate needs of students. These 21st century administrators should be the facilitators of a dialogue that asks:

- What outcomes do we want to accomplish in the classroom?
- What available tools and resources can and will support teachers in helping their students meet these outcomes?
- What preparation do we need to ensure teachers and students appropriately utilize tools and resources?
- How will we measure the effectiveness of these tools to gauge how well they support and improve teaching and learning?

With the questions above, this researcher was to answer the question, "What are the 21st century skills of school administrator?" Therefore, an attempt has been made through this study to find the skills of a school administrator in 21st century so that the results of this study can prepare administrators for becoming a good administrator in their schools.

Objectives of the Study

1. To study the 21st century skills of school administrators
2. To study the current and desirable conditions of the 21st century skills of school administrators under the Primary Education Service Area Office (PESAO) in Udon Thani, Thailand.
3. To study the priority needs of the 21st century skills of school administrators under PESAO in Udon Thani.

Research Methodology

This researcher studied the skills of school administrators in the 21st century skills of school administrators under PESAO in Udon Thani by using mixed methods of quantitative research and qualitative research. The research procedures were as follows:

Phase 1: The study of school administrator's skills in the 21st century

1.1 The researcher reviewed literature about the skills of school administrators in the 21st century from documents, books, concepts, theory, and research literature. In addition, content analysis and content synthesis were used to create a research framework as well as a research instrument.

1.2 Develop a semi-structured interview to study the skills of school administrators in the 21st century by using documents from reviewed literature (1.1) to interviewing the expert of educational administration about "What are the important skills of school administrators in the 21st century?"

1.3 Interview 9 experts consisting of 3 university lecturers' who major in educational administration, 3 directors of PESAO in Udon Thani, and 3 school administrators with an expert level in school administration or who graduated with a doctoral degree and have knowledge of educational administration that were selected by purposive sampling.

1.4 Analyze data by using interview data from interviewing 9 experts (1.3) for qualitative content data analysis and rearrange the data according to documents from (1.1).

Phase 2: The study of current and desirable conditions about the skills of school administrators in the 21st century under PESAO in Udon Thani

2.1 Research instrument: The questionnaire of current and desirable conditions about the skills of school administrators in the 21st century under PESAO in Udon Thani that the questionnaire according to the document analysis from Phase 1 in two parts as follows.

Part 1: Questionnaire about demographic information consisting of gender, age, educational level, position, experience in educational administration, and size of school.

Part 2: Questionnaire about current and desirable conditions of school administrator skills in the 21st century under PESAO in Udon Thani. The questionnaire used a Likert scale which had five levels on the check list form with opinion level criteria as follows in table 1.

Table 1: Opinion level criteria about current and desirable conditions about the skills of school administrators in the 21st century

Rating Scales	Meaning of Opinion Level Criteria	
	Current Condition	Desirable Condition
5	The existing is **very high**.	The expected is **very high**.
4	The existing is **high.**	The expected is **high.**
3	The existing is **moderate.**	The expected is **moderate.**
2	The existing is **low.**	The expected is **low.**
1	The existing is **very low.**	The expected is **very low.**

The IOC of the questionnaire was between 0.80 – 1.00, which references that questions were useable. The reliability (r_{tt}) of the questionnaire was 0.80 that tried out with 30 school administrators, who were not part of the samples group that the reliability using Cronbach's Alpha Coefficient.

2.2 Population and Samples: The population in this study was 803 school administrators under PESAO in Udon Thani in 2017 and the sample group of this

study was 260 school administrators selected by the purposive sampling in which the sample size was chosen by using the Table of Krejcie & Morgan (1970) and stratified random sampling was used the stratification criteria according to education service area before calculating proportion of samples and random.

2.3 Data analysis:

2.3.1 Data analysis of school administrator's skills in the 21st century from interviewing 9 experts, the researcher analyzed qualitative data using content analysis technique for semi-structured interview.

2.3.2 Data analysis of current and desirable conditions about the skills of school administrators in the 21st century under PESAO in Udon Thani, the researcher analyzed quantitative data by examining the completeness of the questionnaire and analyzing the data using Statistical Package for the Social Science (SPSS) as follows:

2.3.2.1 Analyzing data from the questionnaire Part 1, this asked about the status of interviewees by finding frequency and percentage.

2.3.2.2 Analyzing data from the questionnaire Part 2, this asked about current and desirable conditions. The data was analyzed by finding the average ($\bar{X}$) and standard deviation (S.D.) and comparing with the criteria of Srisa-ard (2000) to estimate the result average as follows on table 2.

Table 2: The result average of current and desirable conditions

Average	Meaning of average	
	Current Condition	Desirable Condition
4.51 – 5.00	The existing current condition is **very high**.	The desirable condition is **very high**.
3.51 – 4.50	The existing current condition is **high.**	The desirable condition is **high.**
2.51 – 3.50	The existing current condition is **moderate.**	The desirable condition is **moderate.**
1.51 – 2.50	The existing current condition is **low.**	The desirable condition is **low.**
1.00 – 1.50	The existing current condition is **very low.**	The desirable condition is **very low.**

2.3.2.3 Assess and prioritize needs of school administrator's skills in the 21st century under PESAO in Udon Thani to compare the difference between current and desirable conditions by using Modified Priority Need Index ($PNI_{modified}$) to identify the prioritized needs from the formula as follows (Wongwanich, 2015).

$PNI_{modified}$ = (I – D) / D

$PNI_{modified}$ = Priority Need Index
I = Desirable condition of school administrator in the 21st century under PESAO in Udon Thani
D = Current condition of school administrator in the 21st century under PESAO in Udon Thani

Results of the study

Phase 1: The result of school administrators in the 21st century

The researcher studied the skills of school administrators in the 21st century based on theory from documents, books, concepts, theory, and research literature, which were analyzed using content synthesis to develop a semi-structured interview. The interviewing of nine experts in educational administration was arranged informally using open questions followed by data organization, data display, conclusion and interpretation (Nopkesorn, 2006) to investigate its appropriation based on theory before conducting the questionnaire. The results of the study found that there were five main skills of school administrators in 21st century as follows.

1.1 Organization management skills. This means that school administrators in the 21st century must be able to use new techniques of administration and lead the organization to changes as well as overcoming the resistance to change by using positive perspectives. In addition, the school administrator should be able to arrange the organizational structure, create organizational strategies, develop operational plans as well as implementing the plans, encourage participation, assign duties and responsibilities, and make decisions based on justice, morality, rules, and regulations to administrate the school, including having responsibility to society, using technology to increase the efficiency of managing systems; maintenance, building, qualitative management as well as having systems to investigate the effectiveness of school administration and having flexibility to use the resources appropriately and efficiently.

1.2 Information technology and communication skills. This means that school administrators in the 21st century must have effective communicative skills for both inside and outside the organization, listen to learn and analyze data, and provide comments clearly through writing and speaking. Furthermore, the school administrator must use tone of speaking, facial expression, eye contact, and body language appropriately as well as having credible writing skills and expressing communicative skills in public well to build relationships and participation in the community. In addition, the school administrator must seek opportunities and cooperation from both community and other academic departments including communicating with parents and community through websites and social media.

1.3 Thinking skills. The school administrator in the 21st century must always have creativity and be able to think critically, collect and analyze information technology and evaluate by using systematic thinking. Moreover, the school administrator must solve problems creatively using critical thinking as well as having innovative thinking, thinking outside the box, finding new ways to solve the problems effectively including using new methods to eliminate obstacles, being able to see the big picture of the organization, and seeing every situation with great vision.

1.4 Team building and collaboration skills. The school administrator in the 21st century must lead the team and introduce the team effectively including having participatory management. The school administrator must create and handle personal management wisely to persuade new generation to improve themselves effectively and encourage them to use their ability to work and achieve the goals of the school. In

addition, the school administrator must manage disagreement, create network with other departments, focus on staff's participation within the organization and participation of the community.

1.5 Self and personnel development. The school administrator in the 21st century must have the ability to know, estimate, improve, and develop themselves. Also, the school administrator must create strategies to manage the personnel department in the future, devise a personnel development plan, improve personnel behavior, provide opportunity for growth at work and provide opportunity to workers in lower levels to participate in decision making in order to develop their confidence.

Phase 2: The result of the study concerning the current and desirable conditions of school administrators in the 21st century under PESAO in Udon Thani

The researcher studied the current and desirable conditions of school administrators in the 21st century under PESAO in Udon Thani by using the questionnaire that the researcher developed from document analysis in Phase 1. The questionnaire queried school administrators of PESAO in Udon Thani. The results of this study are found in table 3.

Table 3: Conclusion of data analysis concerning the current and desirable conditions of school administrators in 21st century under PESAO in Udon Thani

Skills of School Administrator in the 21st Century	**Current Condition**			**Desirable Condition**			**$PNI_{modified}$**	**Order of Sig.**
	$\bar{X}$	**S.D.**	**Results**	$\bar{X}$	**S.D.**	**Results**		
1. Organization Management Skills	3.88	0.54	High	4.56	0.46	Very High	0.18	**2**
2. Information Technology and Communication Skills	3.85	0.69	High	4.57	0.50	Very High	0.19	**1**
3. Thinking Skills	3.86	0.65	High	4.54	0.52	Very High	0.17	**3**
4. Team Building and Collaboration Skills	4.02	0.61	High	4.61	0.60	Very High	0.15	**4**
5. Self and Personnel Development Skills	4.03	0.68	High	4.62	0.50	Very High	0.14	**5**
Total	**3.93**		**High**	**4.58**		**Very High**	**0.17**	

From Table 3, it was found that the current condition of school administrators in the 21st century under PESAO in Udon Thani was at a high level ($\overline{X}$= 3.93). When considering each skill, it was found that the skill, which received the highest score, was self and personnel development skills ($\bar{X}$= 4.03) following by team building and

collaboration skills ($\bar{X}$= 4.02) and information technology and communication skills ($\bar{X}$= 3.85) as lowest score. The desirable condition of school administrators in the 21st century was in very high level ($\bar{X}$= 4.58). When considering each skill, it was found that the skill, which received the highest score, was self and personnel developing skills ($\bar{X}$= 4.62) followed by team building and collaboration skills ($\bar{X}$= 4.61) and organization management skills ($\bar{X}$= 4.56) as the lowest score. From the study of index $PNI_{modified}$ of necessary skills for school administrators in the 21st century, it was found that the overall was ($PNI_{modified}$ = 0.17) arranging from information technology and communication skills ($PNI_{modified}$ = 0.19), organizational management skills ($PNI_{modified}$ = 0.18), thinking skills ($PNI_{modified}$ = 0.17), team building and collaboration skills (PNImodified = 0.15), and self and personnel development (PNImodified = 0.14).

Discussion

1. Discussion about results of school administrator's skills in 21st century

The synthesized of the school administrators' skills in the 21st century found that there are five main skills from expert interviews. Which may be the result were as following:

1.1 Organization management skills; since the educational administration in 21st century focuses on modern organizational management, which contains learning strategies, educational development plans, and annual operational plans that allow schools to move in the right direction and create the most efficiency. According to Hoyle, English & Steffy (2005), it was stated that skills that led to the success of school administrators in the 21st century were collecting and analyzing information technology skill that was used to assign work and responsibility as well as making decision. In accordance, Alyn & Bacon (2010) explained that necessary qualifications and skills for school administrators in the 21st century was organizational management skills. Furthermore, efficient leaders must adjust the school's culture by using effective ways of organizational management including organizing the school's organizational structure that conveyed high expectations of learner's outcomes and using all the resources effectively.

1.2 Information technology and communication skills; at the present, in order to administrate school and connect to other academic departments to provide information between school and educational services area office, technology is needed due to its convenience, speed, and cost savings in travelling. According to Viriyapan (2007) it was stated that, besides having knowledge and working ability, leaders or those who were becoming leaders must have leadership skills to create value for oneself and must be ready for the globalized world. Communication is regarded as a very important skill for all human beings, especially the leader, since the leader needs it to build relationships with people both inside and outside the organization. People, who have effective communication skills, usually gain more benefits, because they can use communication as a tool to create and encourage participation.

1.3 Thinking skills; since the management in the 21st century, which is the age of 4.0 needs new innovations for educational development, thinking skills are considered important to manage work, since creativity leads to new innovations, which help

improve teaching qualities and students' learning opportunities. Robinson (2012) stated that creativity was having the ability to lead the school in the 21st century, because creative leaders must find new ways to solve problems and issues effectively.

1.4 Team building and collaboration skills; at the present, schools must cooperate and work in the same direction, and must have connection with the village, units, and other departments in order to work together and improve the school's quality. According to Hoyle, et al. (2005), they had written the book concerning the skills for success in the 21st century school leaders and explained that school leader must emphasize individual participation in the organization as well as participation in the community for development as well as setting policy to build relationships and participation with the community and seeking opportunity and participation from both the community and other academic departments for the benefit of the school.

1.5 Self-development and other skills; in order to develop the school's quality in the 21st century, the school administrator must have knowledge and ability. As the Ministry of Education provides the number of hours for the school administrator and teacher to develop them, the school administrator should be trained to improve them self as well as supporting the staff's development in many areas that are relevant to the teaching expertise and school management. Brunson (2008) stated to the leader in the 21st century that the leader must have self-development for the benefits of others instead of being selfish. Furthermore, the leader should have personal professional growth management skills, estimate self-operation, create plan for self-development, and integrate leading behavior to strategic operation.

2. Discussion about results of current and desirable conditions of the school administrator's skills in the 21st century under PESAO in Udon Thani

2.1 The result found that the current condition of school administrators in the 21st century under PESAO in Udon Thani was at a high level. This was because the school administrator nowadays must administrate according to the assignments from the original affiliation with expediency and accuracy, communicate to create understanding, and analyze the surrounding environment to create strategy and school mission along with creating strategic plan based on vision, mission, and objectives of the school as well as proceeding the school work clearly and being relevant to the policy of original affiliation and school context. Sanguannam (2010) stated that the leader must use knowledge, ability, skill, and experience of management to achieve goals by applying their knowledge, methods, and theory suitable to the situation and surrounding. Moreover, Pongsriwat (2005) explained that the leader must use managing skills to operate and achieve the goal.

2.2 The result found that the desirable condition of school administrators in the 21st century under PESAO in Udon Thani was at a very high level. This was because Udon Thani Provincial Education Office (2016) provided the objectives of Udon Thani Educational Plan B.E. 2017-2021 as follows; 1) All learners acquire standardized quality; 2) The population receives education thoroughly; 3) All learners have morality; 4) All learners have occupational skills and skills to live according to sufficiency economy; 5) The school leader, teachers, and educational staff have potential according to international standard; and 6) Educational departments administrate effectively by receiving participation from all units to provide both

domestic and aboard education. Amdonkloy (2013) explained the role of school administrator in the 21st century that the school leader must realize changes, develop oneself, find strategy, provide new management, adjust the working pattern, give the importance to the relationship of workers inside and outside the organization as well as paying attention to the culture of the organization.

3. The result of skills' arrangement of school administrator in the 21st century under PESAO in Udon Thani found that the most important skill was information technology and communication skills. This was because this is the age of information technology, and in order for the school leader to improve their school's quality, the school leader must know media, innovation, and technology. Therefore, it could not deny that the school leader must have information technology and communication skills to create the most benefits from technology effectively. In addition, Chaemmchoy (2017) explained the school administration in the digital age must be adapted appropriately to the era. Therefore, the school administrator must have leadership in technology and innovation.

Conclusion

1. The result of school administrators in the 21st century

The results of the study found that there were 5 main skills of school administrators in the 21st century as follows; 1.1) Organization Management Skills, 1.2) Information Technology and Communication Skills, 1.3) Thinking Skills, 1.4) Team Building and Collaboration Skills, and 1.5) Self and Personnel Development Skills

2. The result of the study concerning the current and desirable conditions of school administrators in the 21st century under PESAO in Udon Thani

The research result concerning the current and desirable conditions of school administrator's skills in the 21st century under PESAO in Udon Thani found that 5 main skills, which were organization management skills, information technology and communication skills, thinking skills, team building and collaboration skills, and self and personnel development skills, were at a high level for both of them. From the results, arrangement of necessary skills for school administrator in the 21st century, the necessary skills arranged by its most significance were 1) information technology and communication skills, 2) organizational management skills, 3) thinking skills, 4) team building and collaboration skills, and 5) self and personnel development.

Acknowledgements

The authors wish to thank 1) Assistant professor Chanchira Choomponla who kindness to verify my document, 2) Faculty of Education and Rajabhat Udon Thani University that support about travel and registration, and 3) My wife and my friend who give encouragement in this work.

References

Allyn & Bacon. (2010). Leadership for social justice making revolutions in education. Catherine Marshall, Maricela Oliva: Printed in the United States of America.

Amdonkloy, S. (2013). The role of school administrators in the 21st century. Humanities and Social Sciences Journal of Graduate School, Pibulsongkram Rajabhat University, 7(1), 6.

Brunson, J. (2008). 21st Century leadership skills-defined. Retrieved May 17, 2017, from http://buildingconfidentleaders.com/tag/21st-century-leadership-skills.

Chaemmchoy, S. (2017). School Management in Digital Era. Phitsanulok: Naresuan University Publishing House.

Hoyle, R., English, W., & Steffy, E. (2005). Skill for successful 21st century school leader. Maryland: The Rowman & Littlefield Publishing Group.

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. Psychological Measurement, 30(3), 607-610.

Nopkesorn, T. (2006). Qualitative Research Methodology Vol.2. Nakhon Ratchasima:Chock-Chaeroen Marketing.

Pongsriwat, S. (2005). Leadership Theory and Practice: Science and Art to be Complete Leader. Bangkok: Wirat Education.

Robinson, J. (2012). Crawling out-of-the-box: 5 New skills for 21st century school leader. Retrieved September 20, 2016, from http://the 21st century principal. blogspot.com/2012/12/ crawling out-of-the-box-5-new-skills-for.html.

Sanguannam, C. (2010). Theory and Practice in Educational Institution. Nonthaburi: Book Point.

Srisa-ard, B. (2000). Statistical Methods for research. Bangkok: Suweeriyasarn.

Viriyapan, T. (2007) .Managerial skills .Bangkok: G.P.Cyberprint.

Wongwanich, S. (2015). Needs assessment research **.**Bangkok: Chulalongkorn University Press.

Problems and Needs in Writing Skills of Sales Support

Puttikorn Chitsakul, Silpakorn University, Thailand
Rin Cheep-Aranai, Silpakorn University, Thailand

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract
In business communication, the English language is globally used for extending more business opportunities nationally and internationally. Sales support is one vital position that can assist increase profits for the company. One of their main English tasks is to perform writing skills in several documents. Even though, their English language skills is measured by score from proficiency test, those necessary skills for the job have not been directly examined. This study aims at exploring the problems and needs of writing skills of the newly-employed sales supports who directly report business information especially graph description to their employers. A direct writing test of graph description was designed and given to 30 new employees to signify the problems of their writing. The test was designed grounded on the review of the International English Language Testing System (IELTS). Besides, questionnaires were distributed to 15 employers to collect needs of the writing skills and problems they learned from the existing employees. The quantitative data were analyzed by descriptive statistics, while the qualitative data were analyzed by content analysis. The results showed the problems and needs of the employees' writing skills in depth of grammaticality, content, lexical resources, and coherence and cohesion. As for the discussion and pedagogical implications, this research highlighted significant discussion of the findings and aspects to consider when designing a writing course for business organizations. It would benefit learners, teachers, related people in recruitment, management, and the business as a whole.

Keywords: Writing Skill, Sales Support, Problems, and Needs

iafor
The International Academic Forum
www.iafor.org

Introduction

For many countries. English been widely used as commonly spoken universally (Rajathurai, 2017) Additionally, it has become as a foreign or second language in different fields such as education, science, healthcare tourism, and business. It is used for communicating and exchanging ideas among people of different nations (Via and Smith, 1983). It can also foster human from different nations to interact in order to establish mutual understanding and extend connections with diverse communities (Rutherford, 1990). In business environment, the English language is commonly used in business activities such as making orders, discussion in meetings, company and product presentation, note taking in business training, communicating via email or telephone. Nowadays, most of international companies are basically required candidates and new employees to acquire intermediate level of English proficiency. According to Global English (2010), stated that the importance of English language in jobs. 74% of respondents answered that English is required. It is obviously seen, especially in sales activities, they need to communicate professionally with their international clients and foreign colleague (Gutjahr and Mahoney, 2009). Hence, both sales executive and sales support positions are in need to improve their business English to deal with international clients, attend international exhibitions, writing sales proposals, revenue report, and many more activities required in the Sales Department. Whereas the nature of a sales support is to own effective use of spoken language skills, report writing is the other key skill that is exploited as a daily basis. Apart from writing to track and motivate performance sales team (Segarra, 2012), its main purpose is to report numbers in various types of sales including periodic, promotional, and seasonal sales so that the sales and marketing are effectively analyzed. Report writing is vital for the management to adjust their strategies to be current and prevent the sales and opportunity loss. Without background knowledge in business, report writing in English is commonly perceived as a challenge for ESL/EFL learners. Moreover, the level of difficulty is increasing when a foreign language is related to task (Mohamed & Zuoaoui, 2014).

This study aims at investigating problems and needs in English writing skills of sales support in business environment. This research focuses on problems and needs of report writing with graph description that is beneficial for further recruitment in company.

Methodology

This survey research was purposed to investigate:1) the problems of graph description writing skills the sales supports, 2) the needs of graph description writing skills of the sales support.

In this study, data were collected from two groups of participants. The first group was 15 sales support supervisors. They were selected by random sampling technique from recruitment database of the recruitment agency company. The second group was 30 applicants to sales support position. They were selected by random sampling technique on the exam-and-interview date at the recruitment agency company.

Data Collection and Analysis

Two main research instruments were employed to examine problems and needs of the graph description writing skills of the sales supports. The first instrument was a descriptive writing test that was designed based on IETLS Writing Task 1 test. The criteria covered, content, word choice, grammatical errors, organization, and mechanics. The test was constructed for 30 sales supports to signify their problems on writing descriptive graph. The second instrument was the needs of graph description writing skills of sales support supervisors which was divided into three parts: personal information, open-and-closed ended questions related to content, word choice, grammatical errors, organization, and mechanics. This questionnaire was distributed to 15 sales support supervisors to rate their needs (scale of one to five) to write more explanation to clarify their points of views of their needs on writing descriptive graph. Both instruments were validated by expert in English language teaching fields.

The collected data were analyzed by using SPSS. The quantitative data were from the writing score of the test, which was analyzed by descriptive statistics. The criteria of scoring was based on the standardized test, IELTS Writing Task 1 test. Then, those grammatical mistakes were listed, coded, and categorized to illustrate the most errors occurred in sales support's writing skills as a qualitative data. After that, the data were quantified and reported with the examples of each criteria. The collected data from the sales support supervisors revealed the needs of graph description writing skills required from the sales supports. The sales support supervisors rated their needs of graph descriptive writing skills of for the sales in the parallel five categories namely grammatical structure, content, mechanics, word choice, and organization, respectively. The third analyzing is concerned about the evaluation of graph description writing skill of sales support compared with IELTS evaluation

Results and Discussions

This section discussed the results found from the two main instruments. The major findings revealed that 1) grammar was the main problem found in sales supports, and 2) content was addressed as the highest need of graph descriptive writing skills by the sales support supervisors. The detailed findings are discussed below.

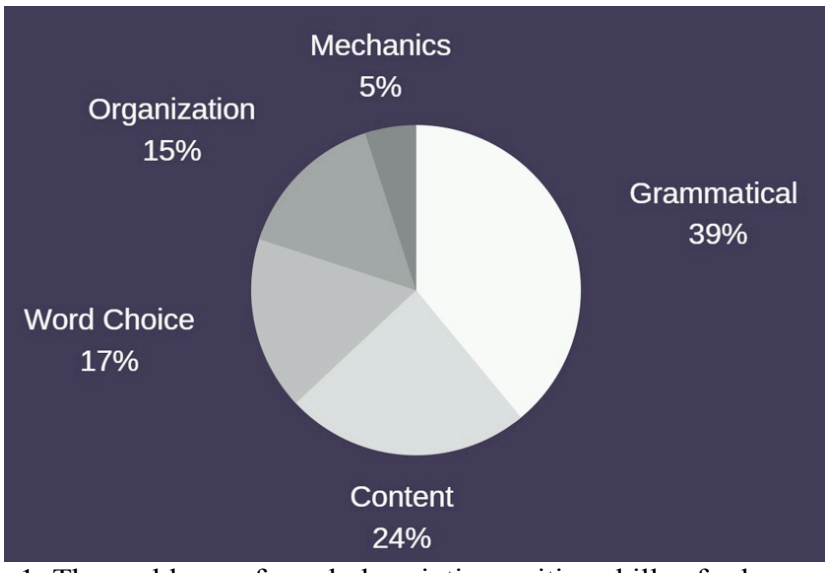


Figure 1: The problems of graph description writing skills of sales supports.

According to Figure 1, the pie chart represents the information about the problems of graph description writing skill of sales support. Grammar is the highest level of problems (39%) in graph description writing skills of sales supports. To elaborate, they were found in aspects of Inappropriate use of propositions, errors in the use of verb forms, and errors in the use agreements. Next to grammar, content (24%) was determined to be the second problems of the sales support's graph description writing skills. The common problems found included meaning constraints, redundancy of expression, and, divergence. Word choice was found the third major problem (17%), for example, mistaken uses of word choice and spoken form.

It can be explained that grammar has long been the pain points for all English language learners especially in Thailand, where English is used as the foreign language and scarcely used in daily lives. Content and word choice are the main features in making meaning for communication. When the learners do not have background knowledge in the content area—business issue in this case, it becomes a significant problem to their writing skills.

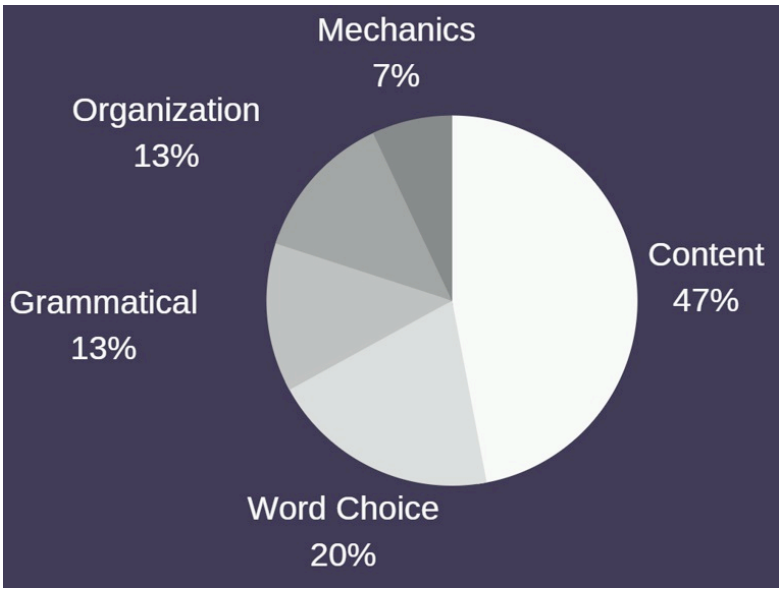


Figure 2: The needs of graph description writing skills of sales support supervisors.

According to Figure 2, the pie chart represents the information about the needs of graph description writing skill of sales support supervisors. They expressed their needs for the subordinates to improve content as the first priority (47%). Second to content was word choice (20%) that was rated of their needs. Moreover, the sales support supervisors rated grammar and organization (13%) equally as the needs after content.

Interesting information was shown between the most problematic writing skill of the sale supports and the most important needs stated by the sales support supervisors. That is to say, sales support supervisors reported that content was the primary need. In the same way, sales supports were examined to have content as the second problematic issue. It could be because the applicants for the sales support position had their background knowledge in business. As a result, they applied for this position. As for the sales support supervisors' most needs, it could be explained that their experiences in communicating with not only native speakers of English but also non-

native speakers of English. Thus, the content that convey key message and meaning is considered to be central points for successful communication rather than grammatical accuracy. However, the word choice and grammar are clearly seen as main features to make content accurate. Therefore, it could explain the reason of the following needs after the content.

Implications

The findings of the study highlighted that learners of English language especially in business have difficulty in grammar for their graph description writing skills. With this result, it can signal the learners and the teachers should work collaboratively to improve grammatical accuracy, which can make the content clearer and a more effective communication with correct mutual understanding. Otherwise, the incorrect interpretation from grammatical mistakes might cause severe damage in the business.

Another major concern is the content in the field of business. This is an important point for teachers and trainers who need to arrange English writing session for the learners. In other words, the results implied that multiple disciplinary is needed. Teachers should work across subjects in order to create an effective course. In this case, teachers of English and business should consult and work with each other for the benefit of the learners and the business.

Conclusion

This study aimed at investigating the problems in writing a graph description of the sales supports, and the needs of the writing skills especially in graph description addressed by the sales supervisors who are experienced in the work and in dealing with new employees. Data were collected by questionnaires and the writing test. They were analyzed by descriptive statistics and content analysis in order to gain both information in depth and breadth. The results showed that grammar, content, and word choice were the three main features of problems and needs, whereas mechanic was the least problematic and need. This study also indicated the pedagogical implications for the teachers and trainers that not only do they need to work with the learners to solve their language problem, but they also need to cooperate with business content teachers. So, they can design an English course for business sectors.

Acknowledgements

I am sincerely and thankful to the kind assistance of Rin Cheep-Aranai, Ph.D. who has advised and assisted this study from the start until the present work. This research cannot be completed without her devotion and contribution. Moreover, I would also like to thanks Sarath Withanarachchi Samaranayake, Ph.D. for his great supports on proofreading and advising my works. Lastly, I would like to thank my colleague, my friends, my classmate to help my research to become successful.

References

GlobalEnglish. (2010). The Globalization of English Report: Globalization Accelerates Need for Business English Communication Skills. Retrieved on March 5, 2020, from https://mafiadoc.com/queue/the-globalization-of-english-report-globalization-globalenglish_59fd40fb1723ddfbd4962708.html

Lothar, G., & Sean M. (2009). English for Sales and Purchasing., *About this book* (pp.4). China: Oxford University Press.

Marta, S (2012). The Importance of Sales Reports: An Interview with Marta Segarra. Retrieved on March 6, 2020, from https://www.forcemanager.com/blog/importance-of-sales-reports/

Melouk, M., & Merbouh Z. (2014) EFL Writing Hindrances and Challenges: The case of Second Year Students of English at Djillali Liabes, 4(3), 1. https://www.mcser.org/journal/index.php/jesr/article/view/2706/2673

Rajathurai, N., (2017). Important of learning English in today world. Retrieved on March 6, 2020, from https://www.researchgate.net/publication/329505353_Important_of_learning_English_in_today_world

Rutherford. (1990). Hotel Managing and Operation. New York: Van Nostrand Reinhold.

Via, Richard A., and Smith, Larry E. (1983). Talk and Listen: English as an International Language Via Drama Techniques. London: Pergamon Press.

Contact email: goggack_cooper@hotmail.com

Who's Who in High School Computer Science Textbooks in Taiwan

Chiu-Yen Chen, National Taiwan Normal University, Taiwan
Cheng-Chih Wu, National Taiwan Normal University, Taiwan

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract
The scientists mentioned in textbooks are those who had great contribution to the field. By learning about the life and the societal and cultural background of scientists, students learn not only science knowledge but also how science interacts with human life. This study examines how computer scientists presented in the high school computer science textbooks in Taiwan. A total of 13 high school computer science textbooks are analyzed. The analysis results show that: (1) The most mentioned computer scientists in the textbooks are Linus Torvalds, followed by Dennis Ritchie and John von Neumann; (2) the most computer scientists mentioned is in the field of Programming, followed by hardware, software and operating systems; (3) the time that computer scientists are most mentioned is after 1946, when the digital computers were invented, followed by the era before 1900s; (4) the descriptions of computer scientists are usually brief and focus on their contributions to the fields. Curriculum guidelines and the preferences of the authors are the main factors affecting the presentation of computer scientists in the textbooks.

Keywords: computer science, computer scientist, textbook

iafor
The International Academic Forum
www.iafor.org

Introduction

Textbooks are used in the majority of science and mathematics classrooms (McDonald, 2016; Banilower, Smith, Weiss, Malzahn, Campbell & Weis, 2013). Many scientists are presented in textbooks. Introducing the contribution and the life of scientists help students learn not only science knowledge but also how science is developed. It also brings the human factor into the learning of science and technology. Miller (1988) indicated that the societal and technical aspects of computing are interdependent, and technical issues are best understood and taught in their social context. By learning about stories of computer scientists, even non-science majors can be more engaged in the study of computer science.

It is important to know how scientists are presented in textbooks. Science textbooks influence students' image of science and scientists, and students very often draw images similar to what their science textbook presented (She, 1995). Students' views of scientists' images affect their willingness to engage in science-related work (Mason, Kahle, & Gardner, 1991). Analyzing how scientists presented in textbooks may reveal information on how students acquire image of science and scientists, even how science was understood.

Computer science textbook in Taiwan are endorsed by the Ministry of Education. The textbooks must follow the curriculum guideline set by the Ministry of Education. The first high school computer science curriculum in Taiwan launched in 1984, followed by major revisions in 1995, 2008, and 2017. The present 2017 CS curriculum is required for Grades 7-9 and Grade 10 students. The course credits are 6 credits and 2 credits respectively. The content areas for students to learn include programming, algorithms, system platforms, applications, data representation and analysis, human and social issues. This study attempted to analyze how computer scientists were presented in high schools CS textbooks in Taiwan. We were interested to know, for example, the most commonly mentioned computer scientists, the field has most computer scientists mentioned, the factors affecting the presentation of computer scientists, and how computer scientists were presented.

Purpose

The purpose of this study was to analyze computer scientists presented in Taiwan's high school computer science textbooks. The research questions are as follows:

(a) Who are the most mentioned computer scientists in the textbooks?
(b) Which field of CS has the most computer scientists mentioned in the textbooks?
(c) What factors affect the presentation of computer scientists in the textbooks?
(d) How computer scientists are presented in the textbooks?

Method

A total of 13 high school CS textbooks across three versions of curricula were analyzed, including five textbooks with 1995 curriculum, four textbooks with 2008 curriculum, and four textbooks with 2017 curriculum. The content analysis method was applied in this study. All the textbooks were reviewed and the content related to

computer scientists were identified, and then the identified contents were categorized to answer the research questions.

Results

1 The Most Mentioned Computer Scientists

We calculated the number of textbooks that a computer scientist was mentioned. No matter how many times a scientist was presented in different part of a textbook, the number of times was one. Table 1 provides the computer scientists, who were mentioned at least in three textbooks, and their major contributions addressed in the textbooks. The most mentioned computer scientists were Linus Torvalds, followed by Dennis Ritchie and John von Neumann. The most mentioned computer scientists are related to the design of computers (John von Neumann, Blaise Pascal, Charles Babbage, and J. Presper Eckert), the development of hardware and system (Linus Torvalds, Gordon Moore, Herman Hollerith, Tim Berners-Lee, and Vint Cerf), and programming languages (Dennis Ritchie and Grace Hopper). The result revealed that the history of computer science was usually the core portion that computer scientists were presented.

Chen and Wu (2013) asked CS teachers to nominate important computer scientists that students need to know, and the top five people were Bill Gates, Steve Jobs, John von Neumann, Tim Berner-Lee, and Steve Wozniak. Among them, Bill Gates (2 textbooks), John von Neumann (6 textbook), and Tim Berner-Lee (3 textbooks) are appeared in both lists. It seems what CS teachers had in mind is different from the textbook authors, or different from the focus of the curricula. However, everyone agreed the importance of John von Neumann.

Name	N	Main contribution
Linus Torvalds	8	Designed Linux OS
Dennis Ritchie	6	Improved B language to C language
John von Neumann	6	Proposed the stored-program architecture
Blaise Pascal	4	Designed mechanical calculator-adder Pascaline
Charles Babbage	4	Invented the Difference Engine and the Analytical Engine designed with modern computer operation concepts
Gordon Moore	4	Presented Moore's Law, Co-founder of Intel Corporation
Herman Hollerith	4	Invented a card reader to read card information. Calculators had evolved from the mechanical age to electrical appliances, and computer technology had also evolved since then.
Ada Lovelace	3	Worked with Babbage to study the instructions to operate the Analytical Engine Become the first programmer by later generations

J. Presper Eckert	3	Mauchly and Eckert make the world's first computer ENIAC with a vacuum tube
Grace Hopper	3	Invented the world's first compiler-"A-0" Created the first commercial computer programming language COBOL
John Mauchly	3	Mauchly and Eckert make the world's first computer ENIAC with a vacuum tube
Tim Berners-Lee	3	Developed the World Wide Web (WWW)
Vint Cerf	3	Proposed a set of communication protocols TCP/IP presenting the concept of the Internet

Note. N: the number of textbooks mentioned

Table 1. The Most Mentioned Computer Scientists in Textbooks

2 Fields with the Most Computer Scientists Presented

To know which field has the most computer scientists presented, we counted the number of computer scientists mentioned in each field. If a computer scientist's contribution includes more than two fields, each of the field is counted once. The ten fields listed in Table 2 were the learning content outlined in the three versions of the CS curricula. Table 2 revealed the number of computer scientists mentioned in each field. The result showed that the field of programming had the most computer scientists mentioned, followed by computer hardware, and then software/operating systems.

Programming has received unanimous attention from the Computer Science educators around the world in recent years. Programing was emphasized in all the three versions of high school computer science curricula. The result responded to the situation where programming had received much attention.

Fields	N			
	1995's	2008's	2017's	Total
Programming	19	11	2	32
Hardware	3	20	1	24
Software/ OS	3	6	1	10
AI	0	2	7	9
Network	1	6	2	9
Other application	1	5	2	8
Algorithm	0	2	5	7
Logical operation	1	1	0	2
Block Chain	0	0	1	1
Information security	0	0	1	1

Note. N: the number of computer scientists presented

Table 2. Computer Scientists Presented in Each Field

3 Time with the Most Computer Scientists Mentioned

To understand which period of the time had the most computer scientists mentioned, we categorized the contributions of scientists into three periods, which were the 19th century and before, between 1901~1945 (before the invention of digital computer), and post-1946 (after the ENIAC computer was invented). The findings showed that the period after 1946 had the most computer scientists mentioned, with a total of 45 counts; followed by the time before the 1900s, with a total of 8 counts; and only 2 mentions were made on scientists between 1901 and 1945. The result showed that the textbooks were most likely to present computer scientists who made contributions after the invention of computers. The reason may be due to that more inventions and progress of computer science occurred after computers invented. Another possible reason was that the history of computing was not a major portion of the computer science curricula, thus computer scientists in early times were of less importance.

4 Factors Affect the Presentation of Computer Scientists

To identify the factors affecting the presentation of computer scientists in textbook, we analyzed the number of computer scientists mentioned in each textbook. The statistics presented include the average number, the total number, and frequency of mentions of computer scientists in textbooks with different curriculum guidelines.

Table 3 showed the number of computer scientists presented in each textbook. The results showed that the textbooks of 2008 curriculum had the most computer scientists presented, with an average of 16 scientists presented in each textbook; followed by the textbooks of 1995 curriculum, with an average of 7.8 scientists in each textbook; and the textbooks of 2017 curriculum presented the least computer scientists, with an average of 5.8 scientists. Because the history of computing was a part of the 2008 curriculum, the textbooks usually presented the content with the contributions or the stories of computer scientists. The textbooks of 2017 curriculum presented least computer scientists, the reason may be that history of computing was withdrawn from the curriculum. The different emphasis of curricula would result in different presentation of computer scientists in textbooks. Table 3 also showed that different authors presented computer scientists differently, especially in the 1995 curriculum. Three of the textbooks presented less than five scientists, while as two of them presented more than 14 textbooks.

	1995 curriculum						2008 curriculum					2017 curriculum					
	A	B	C	D	E	**total**	H	I	J	K	**total**	L	M	N	P	**total**	**total**
N	3	14	5	16	1	**7.8**	16	16	12	20	**16.0**	7	6	7	3	**5.8**	**9.7**

Note. N：the number of computer scientists

Table 3. The number of computer scientists presented in each textbook

Table 4 showed the introduction of the top three computer scientists in each textbook. Linus Torvalds and Dennis Ritchie were commonly mentioned in both 1995 and 2008 curriculum but none in the 2017 curriculum. John von Neumann appeared in most textbooks of both 2008 and 2017 curriculum but none in the 1995 curriculum. In

addition, only two counts of computer scientists were found in the textbooks of 2017 curriculum. The focus of curriculum may address the difference of presenting computer scientists.

		1995 curriculum					2008 curriculum				2017 curriculum			
Name	N	A	B	C	D	E	H	I	J	K	L	M	N	P
Linus Torvalds	8	✓	✓	✓	✓	✓	✓	✓	✓					
Dennis Ritchie	6		✓	✓	✓		✓	✓		✓				
John von Neumann	6						✓	✓	✓	✓	✓	✓		

Note. N：the number of textbooks

Table 4. Distribution of the top three Computer Scientists mentioned in textbooks

Table 5 show that the most mentioned computer scientists in the textbooks of 1995 curriculum were Linus Torvalds, Dennis Ritchie, and Bill Gates. The 1995 curriculum emphasize introduction of computer science and programming, thus these three computer scientists are presented. The computer scientists most mentioned in the textbooks of 2008 curriculum were Blaise Pascal, Charles Babbage, and Herman Hollerith, who were all in the days before computers invented. Due to the emphasis on the history of computer science in the 2008 curriculum, the textbooks focused on computer scientists who have made significant contributions on the invention and application of digital computers. The computer scientists commonly mentioned in the textbooks of 2017 curriculum were Edsger Dijkstra, John von Neumann, and Leonhard Euler.

Name	N	Main contribution
1995 curriculum		
Linus Torvalds	5	Designed Linux OS
Dennis Ritchie	3	Improved B language to C language
Bill Gates	2	In 1975, Bill Gates and Paul Allen developed the BASIC compiler; founded Microsoft Corporation
2008 curriculum		
Blaise Pascal	4	Designed mechanical calculator-adder Pascaline
Charles Babbage	4	Invented the Difference Engine and the Analytical Engine
Herman Hollerith	4	Invented a card reader to read card information. Calculators have evolved from the mechanical age to electrical appliances
2017 guideline		
Edsger Dijkstra	2	Proposed the concept of Structured Programming

John von Neumann	2	Proposed the stored-program architecture in 1945
Leonhard Euler	2	Started graph theory research

Note. N: the number of textbooks mentioned

Table 5. Computer scientists presented in each of the three curricula

5 How Computer Scientists Were Presented in Textbooks

We found common characteristics which the textbooks presented computer scientists. Computer scientists in the textbooks are usually presented in a short and straightforward way, often describe plain facts such as "Android was originally developed by Andy Rubin", "Bill Gates and his good friend Paul Allen developed the BASIC compiler", and "Berners-Lee proposed the WWW plan, which later became a major service on the Internet". These descriptions presumably are due to the limitation of the textbook volume that textbook authors can only describe computer scientists in a concise and simplified way. The other reason is that the authors did not realize the importance of presenting computer scientists to students.

Some presentation of computer scientists tends to be knowledge-driven. They often introduce computer scientists using special terminologies. For instance, "Linus Torvals is not satisfied with the Minix operating system, which is similar to UNIX. So in 1991 he published on the school FTP his work called Freax, as the kernel of Linux. This is a combination of free and freak, and the letter X is used for the Unix-like system ..." Descriptions like this are full of jargon and lack humanistic elements, and may make students feel bored in reading.

Conclusion

Introduction of computer scientists is an idea way to present science knowledge and scientific enterprise to students. It also adds humanistic ingredients into learning and teaching.

The findings of our study showed that Linus Torvalds, who designed Linux OS, was the most mentioned computer scientist in the textbooks; computer scientists were most mentioned in programming languages related content; computer scientists were most mentioned after digital computers were invented in 1946; presentation of computer scientists were affected by the authors and the focus of curriculum; and description of computer scientists were often short, plain, and fragmented.

We also found that computer science textbooks, due to the limited space, may not give a comprehensive introduction of computer scientists, or simply mention their contributions briefly. The key factors for presenting computer scientists in textbooks may depend on the focus of a curriculum and the preference of textbook authors. It is recommended computer science curriculum to address the importance of presenting computer scientists and textbook authors to realize the positive effects on introducing computer scientists in students' learning.

References

Banilower, E. R., Smith, P. S., Weiss, I. R., Malzahn, K. A., Campbell, K. M., & Weis, A. M. (2013). *Report of the 2012 national survey of science and mathematics education* . Chapel Hill, NC: Horizon Research.

Chen, Y.-F. & Wu, C.-C. (2013). *Bringing history of computing into high school CS curriculum: Teachers' perspectives*. The Learning and Teaching in Computing and Engineering (LaTiCE 2013) Conference, March 22-24, Macau, China.

Mason, C. L., Kahle, J. B., & Gardner, A. L. (1991). Draw - a - scientist test: Future implications. *School science and mathematics*, *91*(5), 193-198.

McDonald, C. V. (2016). Evaluating junior secondary science textbook usage in Australian schools. *Research in Science Education*, 46, 481–509.

McDonald, C. V. (2017). Exploring representations of nature of science in Australian junior secondary school science textbooks: A case study of genetics. In *Representations of Nature of Science in School Science Textbooks* (pp. 98-117). Routledge.

Miller, K. (1988). Integrating Computer Ethics into the Computer Science Curriculum. *Computer Science Education, 1*(1), 37-52. doi:10.1080/0899340880010104

Ministry of Education (1995). *The curriculum guidelines for senior high schools*. Taipei, MOE.

Ministry of Education (2008). *The curriculum guidelines for senior high schools*. Taipei, MOE.

Ministry of Education (2017). The curriculum guidelines for senior high schools. Taipei, MOE.

Retrieved from https://www.naer.edu.tw/ezfiles/0/1000/img/52/129488083.pdf

Penick, J. E., & Yager, R. E. (1993). Student Growth in Creative Skills in Middle School Science. *Science Educator*, *2*(1), 21-27.

She, H.-C. (1995). Elementary and middle school students' image of science and scientists related to current science textbooks in Taiwan. *Journal of Science Education and Technology*, *4*(4), 283-294. doi:10.1007/bf02211260

Contact email: chihwu@ntnu.edu.tw

In Search of an Effective Online Campus for Online-only Universities

Hiromi Oda, Tokyo Online University, Japan
Noriyuki Enomoto, Tokyo Online University, Japan
Keisuke Kawashima, Tokyo Online University, Japan
Mizuho Imahashi, Tokyo Online University, Japan
Noritaka Fujita, Tokyo Online University, Japan
Toshimitsu Shigemura, Tokyo Online University, Japan
Hiroshi Nakamura, Tokyo Online University, Japan
Kanae Mori, Tokyo Online University, Japan

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract
This is an interim report on an investigation into the psychological and social problems of online campus life at online-only universities. The immediate goal of this research is to search for an effective communication platform for the online campus at Tokyo Online University (TOU), which has opened its doors to students in April 2018. Online technologies to connect people, such as SNS, virtual campuses using avatars, or MOOCs(Massive Open Online Courses), have met great difficulties in the context of online distance education. The guiding hypothesis of this research project is that there is a common humanizing factor that is lacking in these attempts. In order to throw light on this common underlying difficulty, a research project is currently under way. At this point, questionnaire and interview surveys were completed. The preliminary results of the analyses revealed that students have a dilemma between the desire to be connected to other students and the fear and anxiety to join SNS or online interactions. Although the analyses are still incomplete, it is expected that the results of this research will help other online-only universities as well.

Keywords: online campus, online student communication, distance education

iafor
The International Academic Forum
www.iafor.org

Introduction

Tokyo Online University (TOU) opened its doors to students in April 2018. It provides almost all of its courses online through its LMS (Learning Management System). It means that there is no physical campus where students can meet other students face-to-face. Last summer, the school started to provide an intra-SNS service called Yammer, a part of the school-wide Office365 subscription, in response to strong demands by students for online campus activities. Yet, the school encountered various problems and complaints, and the current situation seems to be far from satisfying the expectations by the students.

Many previous attempts to connect students through ICT(Internet and Communication Technology) such as blogs, SNS, virtual reality and avatars, or MOOCs, also met great difficulties. Still, virtual universities like TOU need some online technology to connect people, otherwise there will be no interactions among students. This is a serious and urgent problem for the school, and it might play an important role in the success of those online schools.

From Correspondence Education to Virtual University (VU)

Correspondence education started in the 1840s when the postal system in England was established. The next evolution was the broadcast system based on radio and TV. The Open University in Britain was the first to offer broadcasted-based education in 1971. Students do not need to attend brick and mortar schools anymore, and the tuitions are usually inexpensive compared to traditional schools. The term, "distance education," came to be used around this time. It seems that new emerging technology has been quickly adopted in the field of education.

The trend is still alive with the Internet and Communication Technology (ICT). By the time World Wide Web(WWW) and the first browser became available in 1994, online courses on the Internet were already started. They are often called "Virtual University" or "Online University." Since then we have seen new technologies, such as SNS, blogs, virtual world and avatars, and MOOC(Moocs: Massively Online Open Courses), being applied in the world of education. Now we are in the era in which people can attend classes online from anywhere in the world and get certificates of the course, usually without paying high tuition.

However, in a review paper on this issue (Oda et al., 2020), it was pointed out there seems to exist a cycle of the rise and fall of these technologies. Each technology was introduced to the world of education touted to bring an ideal mechanism of student interactions and collaboration. For each, there were research papers that confirmed positive effects on students. However, they have largely failed to meet initial expectations. To give just one example, George Siemens and Stephen Downes, the founders of the MOOCs movement, are expressing their disappointments in the following quotation;

"Moocs today…are quite different from the ones that Stephen and I developed. Our goal was to encourage the development of learners through open and transparent learning, where the process of knowledge generation was iterative – improving on the

ideas of other learners and generating new knowledge through continual…improvement." (Parr, 2013)

Their expectation was that MOOCs would become the tool and environment to create a dynamic and organic student community, but they are not seeing it happening. It seems that there is an intrinsic difficulty to realize it in the context of online interactions using ICT.

Common Challenges to Online Education

One problem often cited among students in distance learning is the problem of isolation. Students of VU usually take classes alone looking at computer screens and they do not have friends sitting next to them whom they can ask questions on the meaning of a passage in the textbook or what the teacher just said. Lack of this environment may not seem important at first, but there are various reports that it is the source of a serious obstacle online education faces.

For example, Jones reported that isolation is a serious challenge for distance education (Jones, 2016):
Research by The Higher Education Academy (Park, 2008, p.16) found that 22% of distance learning students mentioned 'the risk of feeling isolated' as a challenge, reflecting findings that personal interaction is important for student learning (Ipsos MORI, 2007).

Many reports, including (Gillett-Swan, 2017) and (Croft et al., 2010), claim that isolation and lack of the social presence of teachers eventually lead to the lack of motivation of students.

The problem of isolation and solitude is something traditional ICT solutions did not look at seriously, not only in the field of education but also in applications for other purposes. Thus, the clues for the solution to this common problem in online education might be useful in other fields.

Research Goal

There is no question about the benefits of virtual or online in terms of the time and distance for commuting and costs involved. Still, it is also true that there are common problems outlined above.

Although the technology to connect people online has been available for some time, there is something missing in order to connect students in the sense the MOOCs founders envisioned. A possible hypothesis is that previous attempts to use various ICT technologies missed a "humanizing" viewpoint. The problem of isolation and anxiety while studying online with ICT tools is a prime example. And, other issues such as cultural orientations by students may be also involved.

The immediate goal of this project is to try to find out the problems at TOU and to propose some possible solutions. Thus, the overall goal of the project is two-fold:
1) Find out the current situation of online "campus life" at TOU:

2) Propose a suitable form of "campus life" at TOU, and a suitable platform and communication tools to support it.

This is a preliminary report focusing on the first part of the goal.

Methods

Although the project has a larger research design including data analysis of the intra-SNS, only the preliminary analysis results of the questionnaire and interview surveys are available at this time, and descriptions of methods are restricted to these portions.

Questionnaire survey

The goal of the questionnaire survey is to find out the current situation of students' campus life and the use of communication tools. It was conducted using Google Form accessible from the school website. Although the access to the questionnaire form was restricted to TOU students and the login process was required, the survey itself was anonymous and the researchers did not have access to the login data. The questionnaire survey was notified on the school website at the beginning of September, and the online form was open in September through October in 2019. The number of registered TOU students at the time was roughly 1, 700 and the number of respondents was 70.

After the mandatory privacy notice section, it included 23 questions in total

Questions:

- Male/Female, Age range, Grade
- Questions related to solitude and anxiety
- Do you feel isolation or anxiety while studying online?
- In what situation?
- Questions on the SNS service
- Do you use SNS? Which SNS? How frequently?
- Do you know our intra-SNS (Yammer)?
- Since when? How did you know it?
- Do you use it? How often?
- How many groups do you join?
- Are you satisfied with the service?
- Reasons for yes/no answers
- Do you intend to use it from now on?
- Reasons for yes/no answers
- Will you be available for an interview

Interview survey

Interviews were conducted, in October and November 2019, for 12 students who agreed to the interview by responding to the last question of the questionnaire. The interview sessions were either in person or via Skype TV call. Two researchers attended each interview. One researcher took the lead in asking questions and the other researcher took detailed notes. The interview started with the same questions as the questionnaire, followed by conversations on more details. The session took about

30 to 60 minutes for each person. The sessions were recorded and the notes were matched against them for accuracy.

Results

Results of Questionnaire survey

Among 70 respondents for the questionnaire, there were 34 male and 36 female students. The breakdown of the age range is as follows:

Gender＼Age	10s	20s	30s	40s	50s	60s	Total	Ratio
Female	0	6	13	11	6	0	36	51.40%
Male	1	6	9	14	2	2	34	48.6%

Table 1: Gender and Age range

The age range is widely distributed and the 30s and 40s are the most populous segments. This distribution fairly well represents the demographics of the student population.

Do you feel lonely while studying online?

When they were asked “do you feel lonely while studying online?”, eight students answered “always,” 19 students “sometimes,” 23 students “occasionally,” and 20 students responded “Never” (see Figure 1). In total, more than 70% of students expressed feeling solitude to a certain degree.

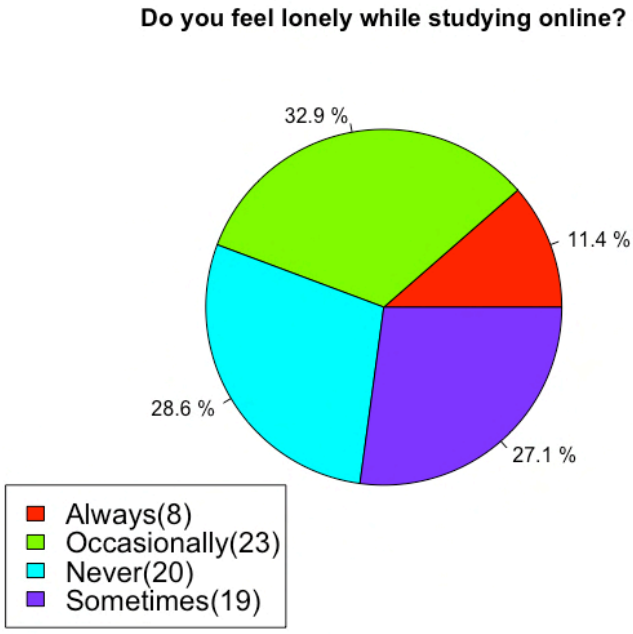


Figure 1: Solitude pie chart (n=70)

The next question further asked, “when do you feel lonely on your studying online?” The question had 4 answer options and an “Other” free-text answer field. The raw scores were as follows:

1. When I felt I had nobody (on campus) to talk to 12
2. When I realized that I had no friend to ask questions when I’m in trouble 24
3. When I felt that there’s no friend to ask help for study. 11
4. Never felt solitude 20

(See figure 2 for a pie chart)

The number of students who never felt solitude coincides with the number from the previous question. The “Other” answers included comments on the psychological barriers when students want to ask questions of instructors.

It is visible from these results that they are looking for somebody to talk to, friends to whom they can ask questions, or ask for help when they have some trouble while studying online. In traditional, physical classes, there are always fellow students that can fill this gap, so this is a unique situation for online or distance education classes. It can be also inferred that they feel psychological barriers to ask professors about what they think simple or casual questions on class or course materials.

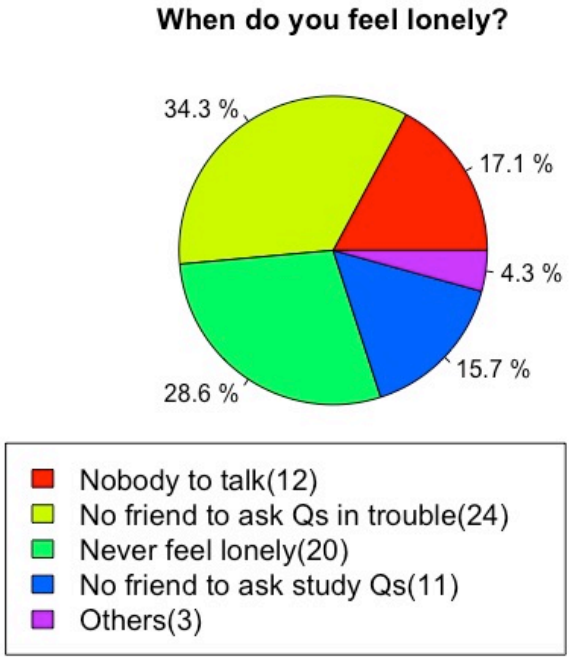


Figure 2: Situations in which students feel lonely (n=67)

Anxiety

For the question, "When do you feel anxiety while studying online?," there were four answer options and an "Other" field in which respondents could input free text.

1. When I don't know how my answers are evaluated (Was it correct?)	23
2. When I feel enough information is provided	24
3. When I realize that I cannot see other students or teachers	9
4. When I realize that there are no direct interactions with other people	7

(See Figure 3 for a pie chart)

The "Other" responses included situations in which students have difficulties in specific classes.

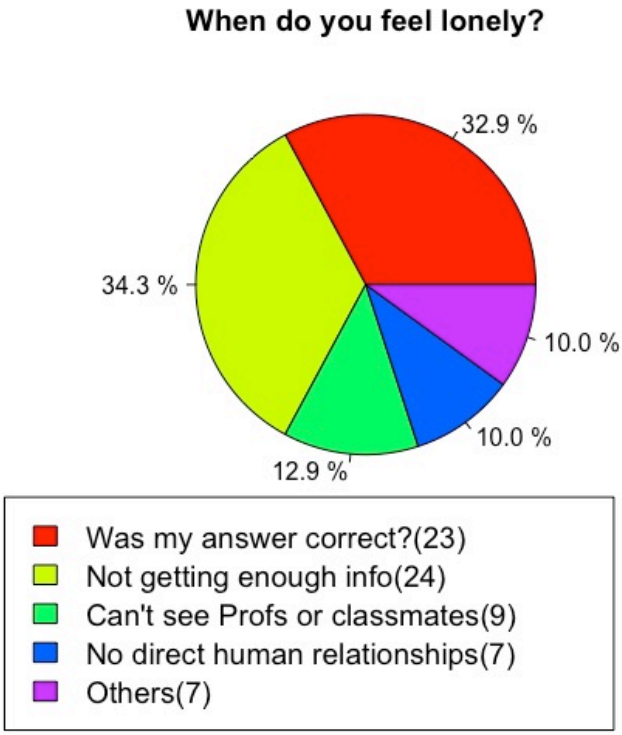


Figure 3:When do students feel anxiety (n=70)

From the results of the questionnaire survey, it possible to surmise that the lack of presence of friends who they can talk to and ask for help when they have study questions is one of the major sources of solitude and anxiety.

Questions on SNS services

The questionnaire asked a couple of general questions on the use of SNS, and five questions specific to the intra-SNS service (Yammer).

1. For the first question, 55 students out of 70 (79%) answered that they use some SNS service. As expected, popular services such as Twitter, Facebook, Line, or Instagram were mentioned in the free-form answer field.

2. There were five questions on the intra-SNS (Yammer).
Among 55 students who responded to this question, 53 of them (96%) responded that they knew what Yammer was. But, for the following question about whether they are registered users of the service, only 42 students (79%) among 53 respondents gave an affirmative answer.

3. Frequency of use (n=42):

Less than once a month	13 (31%)
1 to 3 times a month	15 (36%)
1 to 6 times a week	11 (26%)
Every day	3 (7%)

Most people use a few times a month, and only a few percent of people visit the site frequently. Only 17 % of people responded that they were satisfied or mostly satisfied with the service. Only 17%(7) of the people who responded were eager to use it in the future, and 60%(25) said that they will use it if necessary.

These numbers suggest that Yammer is not particularly popular among students at TOU.

Results and analyses of the interview survey

A qualitative analysis was conducted employing the procedure called, "the KJ method," invented by Kawakita Jiro, a Japanese cultural anthropoglot[1]. The analysis starts with the detailed notes taken during the interviews. Researchers jointly worked on this analysis.

Procedure of analysis with the KJ method

1. Notes are broken down into individual cards. One card contains only one observation. About 700 observations(cards) were extracted.
2. Similar cards are grouped into a group or category. Each category is given a descriptive label that represents the underlying theme of the cards included
3. Similar categories generated in the previous step are grouped together, and a descriptive label is assigned as before.
4. Step 2 & 3 are repeated until only a dozen or so categories remain.
5. Each category is turned into a graph to show the relationships among member categories and cards.

Several prominent categories were generated as the result of the KJ method analysis. The most noteworthy categories are described in detail below.

Solitude

- The "Solitude" category included various comments on "loneliness" or "feeling alone." One representative comment in one of its sub-categories says, "I always feel alone online."
- In another sub-category, many comments referred to loneliness because of the lack of people to talk to and organic human relationships on an online campus.

• The other sub-category points out the need for a place to ease solitude and share information.

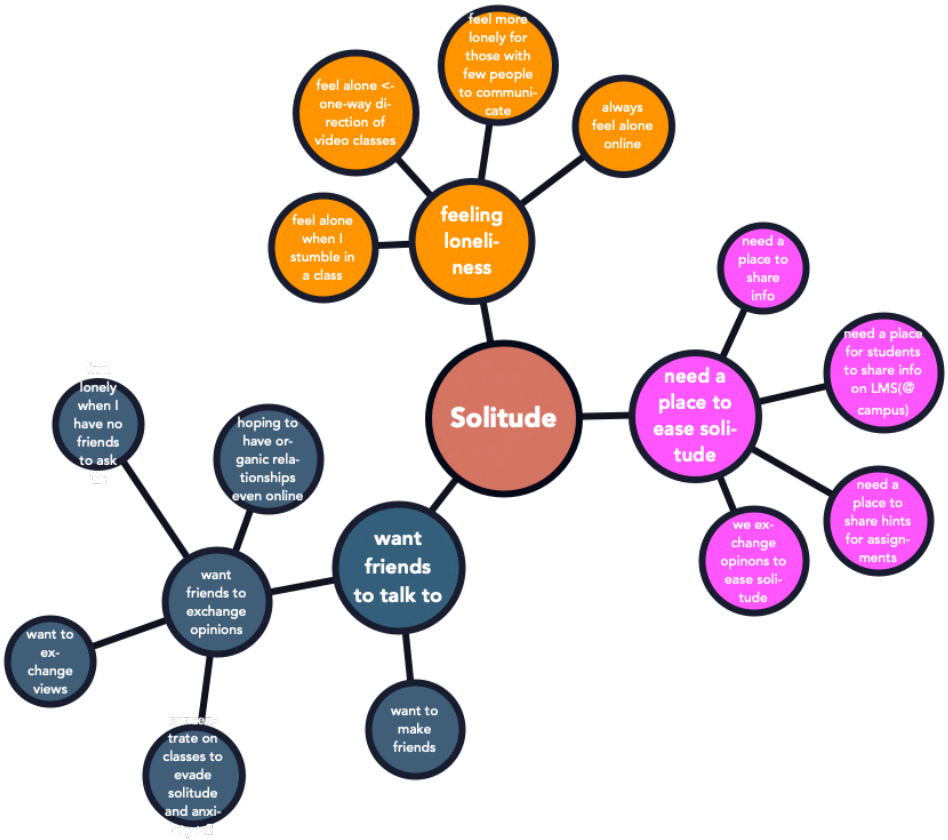


Figure 4:Graph for Solitude category

Anxiety:

• One major source of anxiety among students is the lack of information, especially about situations of other students. They want to know how well other students are doing, or how other students are coping with the course load.

• Various aspects of online learning cause anxiety; when they cannot understand online class contents, when they don't know effective methods to study, or when they are not sure how to balance the study load while having a jot at the same time.

• Anxiety is also connected to situations in which they cannot find a place to ask questions, to get information about course results, or to meet someone they can work together.

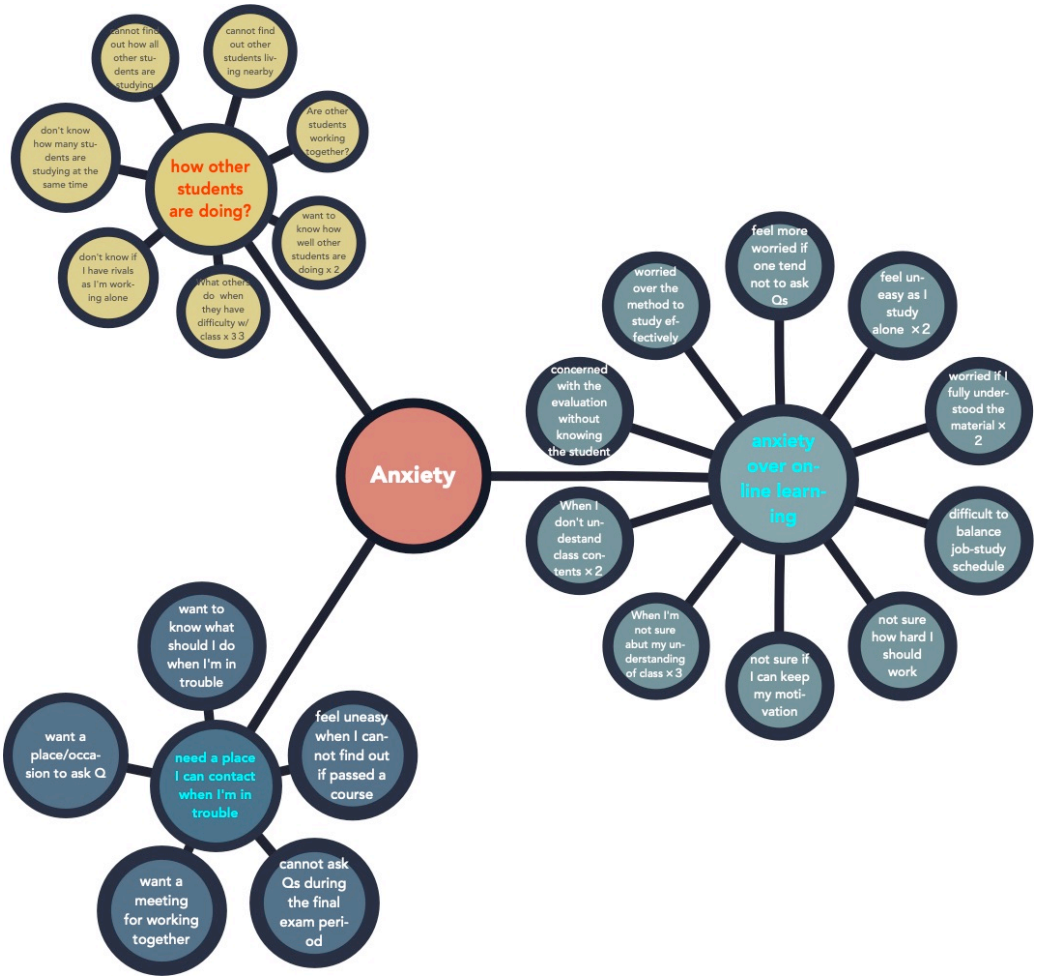


Figure 5: Graph for Anxiety category

Need for Community

- There is a need to simply exchange views and opinions from different people.
- They want a space where they can have a casual chat and talk about course work. They prefer to ask those questions of fellow students rather than professors.
- They look for online interactions without delay or latencies.
- They want real-time, face-to-face interactions.
- They think that it's difficult to replace real, physical interactions by online communication.

In this large category, there seem to be two sub-themes; one theme for interacting online for exchanging different views, possibly without latencies, and another one for face-to-face, real interactions.

Figure 6: Graph for Community category

Negative Chain Problem in SNS

- Positive opinions are often followed by negative responses.
- People get tired of impolite, often offensive, posts from particular members.
- Negative responses can easily spread and accelerate.
- People have come to be afraid, or weary, of getting negative responses when they post opinions.
- Text communication cannot convey all of the nuances in real interactions.

Negative chains refer to a situation in which a person posts a positive opinion about matters such as classes, school office, or professors, followed by messages negating or mocking the positive tone of the original message. And these negative messages tend to propagate faster and damage the atmosphere of the community.

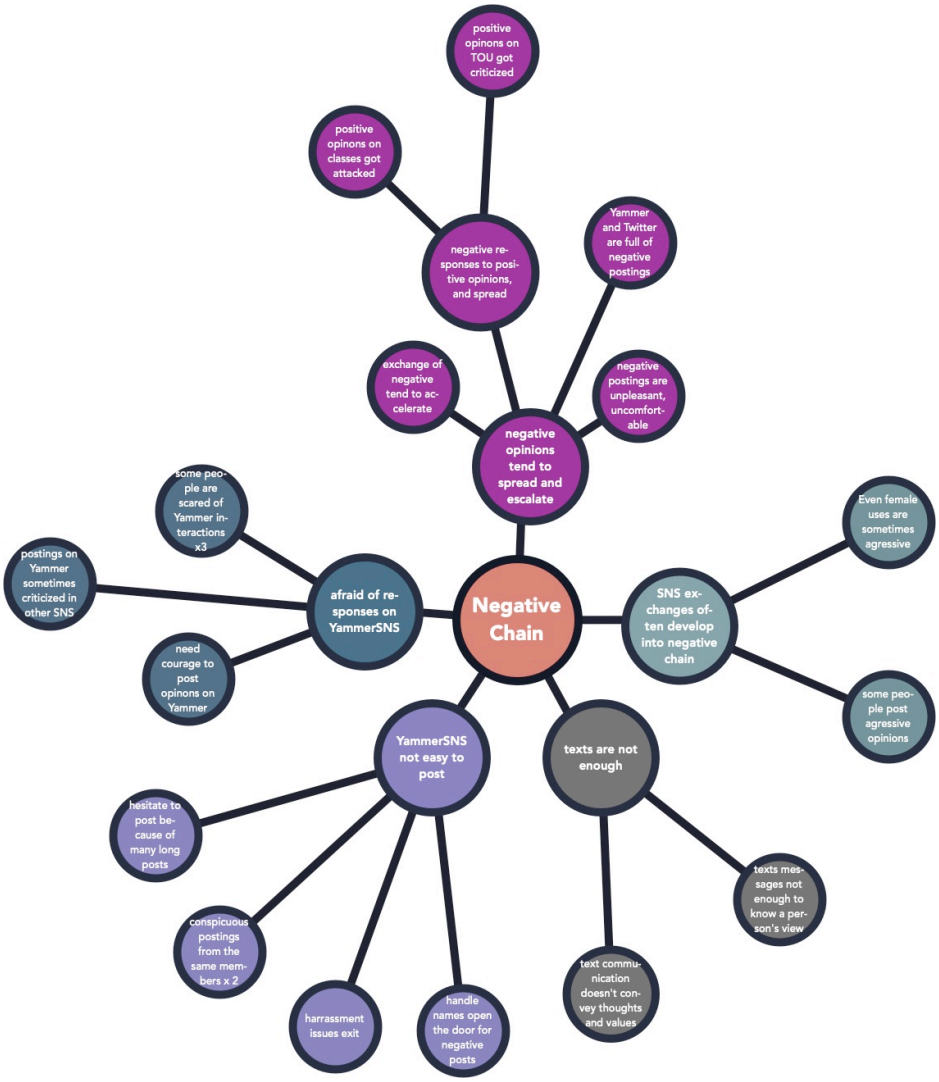


Figure 7: Negative Chain Problem in SNS

Discussion

The dilemma

The results of the questionnaire survey demonstrated that more than 70% of students feel lonely while studying online to a certain degree. Also, the interview survey results include a large category on solitude, which has sub-categories on general loneliness while studying online and about the needs for places to meet other people and ease solitude.

In addition, the two surveys agree that students have anxiety caused by lack of enough information about school or courses, or how other students are doing their work.

Judging from these results on loneliness and anxiety, it is natural that they want to have an online space or tool to communicate with other students. From the large category on the need for community in the results of the interview survey, it is evident that students are looking for friends whom they can ask questions casually instead of asking professors.

However, the survey results also indicate that they are not enthusiastic to join and use the intra-SNS. It was shown that only a few people use it frequently and it would be difficult to expect that the usage will surge in the future.

Here we see a dilemma; the students are lonely and have anxiety so they do want to communicate using online tools, but at the same time, they are afraid of posting their honest opinions caused by negative responses they might receive later.

One interviewee has expressed reluctance to exposing personal information in his messages on SNS. He has seen cases in which people agree with negative posts targeted at positive messages and they spread widely in the community. In this way, people now understand that although exchanges on SNS may seem fun and convenient, the real situation is full of confusing and often uncomfortable situations.

Thus, due to such a dilemma, students will not be able to smoothly interact with others even if they desire to have interactions with other students. If these conditions persist for a long period of time, they may not only increase the students' loneliness and anxiety but also reduce their willingness to learn. Therefore, it is essential to resolve or reduce this dilemma.

Solutions for the dilemma?

What would be the solution? In the earlier analysis (Oda et al., 2020), it was suggested that there seems to be a common problem with online emerging technologies to connect people. What was suggested is to look at the psychological, social and cultural, or "humanizing" aspects for online communication, as some other researchers have already pointed out(Maria & P, 2016).

Online technologies so far sought to overcome technical problems and came up with various "solutions" such as email, blogs, SNS, virtual campuses, and MOOCs. Still, it seems that we do not have a mechanism to provide a comfortable online campus for students. The situation of dilemma unearthed through the analysis reported above seems to be connected to this "human" aspect of student communication, which obstructs the use of ICT tools.

What must be done in the future would be to make efforts to reduce the loneliness and anxiety of students by conveying positive opinions from the community, spreading them to many students, and expanding and deepening connections among students. It seems necessary to find a way to add these humanizing aspects to online technologies.

One possible solution suggested in the present survey results is to have face-to-face meetings before online communication. This is a very popular idea and it might be worth trying to have gatherings for students to meet physically and hold events to make friends or "buddies." We can make comparisons with other people who did not have such an opportunity.

At the same time, online meetings are vital at on-line only universities. There are students who cannot attend those physical meetings simply because they are living far from the campus or living in foreign counties. And there may be students that are not good at face-to-face communication. For example, students with autism spectrum

disorder or similar symptoms may want to avoid eye-contacts with interlocutors and prefer meeting online. For these people, online tools that connect them comfortably and effectively without problems like negative chains are essential.

It is important to consider what is the shortfall in online campuses compared to conventional campuses and to create an online environment where communication does not put mental or psychological burdens on students.

Although there was no space to address the issue properly in this paper, a cultural perspective might also play a role in the "humanizing" perspective. As it was seen in the survey results, students are rather reluctant to send questions directly to teachers in the online space. One possible reason for this is that they don't want to stand out even in the BBS or SNS. This lack of eagerness to join SNS or share opinions on online forums can be connected to the general cultural emphasis on group-oriented values over individualism, which is often claimed to be one of the unique aspects of the Japanese society. This may be common characteristics in Asia. But it is repeatedly pointed out that it is very noticeable in the Japanese society. For example, Rohlan wrote about those characteristics of the Japanese school culture (Rohlen, 1983) and Hofstede proposed Japan culture index in individualism and collectivism to highlight the difference (Hofstede et al., 2010). In Japan, from pre-school education, students wear the same uniform of the school, follow the rules, and try to behave like other students. Raising hands in class or posting questions on a BBS is an act of "standing out" in the crowd, and they have developed an instinct to avoid such a potentially risky behavior.

Conclusion

With the advent of the Internet and online technologies, there are many virtual or online universities today, and some of them are online-only universities, which have no brick and mortar buildings. For such universities, the problem of online campus and student communication is serious and urgent since it has been shown that lack of communication among students and with faculty members results in higher drop-out and attrition rates.

Online-only universities must rely on some ICT technology to connect people, such as SNS or virtual campuses and avatars. There have been many attempts to use those technologies for connecting students online. However, they have met great difficulties in the context of online distance education as was pointed out in an earlier report by this research team(Oda et al., 2020). The hypothesis is that there is a common humanizing factor that is lacking in all of those attempts. The research team is now trying to find out what is missing in the online communication at TOU campus by conducting questionnaire and interview surveys. The analysis results reported here are still preliminary, but they revealed that there is a dilemma in the students; they have solitude and anxiety in their online campus life and looking for connections with other students and faculty members, yet there is a fear of joining actively in the intra-SNS or SNS services in general.

Online campus life does not exist without online communication tools in the case of online-only universities, and we need to keep looking for solutions.

References

Croft, N., Dalton, A., & Grant, M. (2010). Overcoming Isolation in Distance Learning: Building a Learning Community through Time and Space. *Journal for Education in the Built Environment*, *5*(1), 27–64. https://doi.org/10.11120/jebe.2010.05010027

Curedale, R. (2016). *Affinity Diagrams: The tool to tame complexity*. Design Community College Inc.

Gillett-Swan, J. (2017). The Challenges of Online Learning: Supporting and Engaging the Isolated Learner. *Journal of Learning Design*, *10*, 20. https://doi.org/10.5204/jld.v9i3.293

Hofstede, G., Hofstede, G. J., & Minkov, M. (2010). *Cultures and Organizations: Software of the Mind, Third Edition* (3 edition). McGraw-Hill Education.

Jones, P. R. (2016). The Structure and Pedagogical Style of the Virtual Developmental Education Classroom: Benefit or Barrier to the Developmental Learning Process? *International Journal of Language and Literature*, *4*, 6.

Maria, N., & P, G., Kevin. (2016). *Handbook of Research on Humanizing the Distance Learning Experience*. IGI Global.

Oda, H., Enomoto, N., Kawashima, K., Mizuho, I., Fujita, N., Shigemura, T., Nakamura, H., & Mori, K. (2020). In Search of a Pleasant Online Campus for a Virtual University. *Journal of Tokyo Online University*, *2*, 25–50.

Parr, C. (2013, October 17). *Mooc creators criticise courses' lack of creativity*. Times Higher Education (THE). https://www.timeshighereducation.com/news/mooc-creators-criticise-courses-lack-of-creativity/2008180.article

Rohlen, T. P. (1983). *Japan's High Schools*. University of California Press.

[1]It is sometimes called Affinity Diagrams. See e.g., (Curedale, 2016).

Contact email: oda.hiromi@internet.ac.jp

Multi-Level Structural Equation Model of Factors Affecting the Performance Appraisal Effectiveness of Special Education Teachers

Vichuda Chockphukhiao, Khon Kaen University, Thailand
Kanokorn Somprach, Khon Kaen University, Thailand
Jatuphum Ketchatturat, Khon Kaen University, Thailand

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract

The purposes of this research was to develop and examine the congruence of multi-level structural equation model of factors affecting the special education teacher's performance appraisal effectiveness. The research divided into two phases; (I) The synthesizing the key factors of MSEM of factors affecting the performance appraisal effectiveness of special education teachers, using synthesis documents and an in-depth interview from five academic experts. (II) The MSEM examined the consistency using Confirmatory Factors Analysis and Multi-level Analysis of the factors's influence. The sample include 1,120 special education teachers and administrators under the office of Special Education Bureau in Thailand. The instrument was a questionnaire about teacher's performance appraisal effectiveness and factors affecting teacher's performance appraisal effectiveness in Special Education Centers,Thailand. The research found that; First, MSEM factors affecting the performance effectiveness of special education teachers had 7 variables and 25 components. These variables are: 1) organizational – level variables such as school leadership, organization environments, professional learning communities, and collaboration; and 2) the personal - level consisting of self-efficacy, professional development and job satisfaction. In addition, it was found that the emotional state acting as a moderator also influence on the performance effectiveness of the special education teachers. Second, MSEM factors affecting the performance effectiveness of special education teachers is consistent according to structure, value of $\chi 2 = 23.658$, df = 10, p= .001, CFI = 0.969, TLI = 0.939, RMSEA = 0.026, SRMRw = 0.022, SRMRb = 0.000 and $\chi 2/ Df = 2.366$

Keywords: Multi-level Structural Equation Model, Special education teacher's performance appraisal effectiveness, Factors affecting the special education teacher's performance appraisal effectiveness.

Introduction

There were 66,188,503 people in Thailand. There were 1,974,800 people with disabilities accounted for 2.2 percent of the entire population of the country with children having impairments and gained access to educational system calculated 569, 174 people. From the information obtained from Office of the Basic Education Commission, it was found that there has been the ongoing and rising trend of the number of kids having difficulties in every educational level. Most of them were in the primary level. The lower rank fell on the secondary level. However, the educational provision for children with special needs are different from the general one with special education teachers who have got at least a master degree in a special education field or who have got a bachelor degree in special education; passed an assessment for instructional skills necessary for teaching kids with difficulties as prescribed by The Promotional Commission of Education for Persons with Disabilities; and taught, provided, supervised, or done other things related to educational provision for people with impairments in educational institutes in both public and private sectors. Thus, it is very important to coordinate general teachers, professionals, and parents in order to make special education effective (Gearheart & Weishahn, 1980).

From special education provisions in many countries, it was found that there were rising trends in the number of children having special needs, and the development of kids with difficulties did not reach the goal as set, so there was a need of special education teachers in both quantitative and qualitative perspectives. For the special education provided in Thailand in accordance with the plan for educating persons with disabilities, volume 3 (B.E. 2560 - 2564), the problems were: the ratio of special education teachers and kids having special needs does not meet the standard criteria; special education teachers lack of motivation in working; lacking of knowledge and specific techniques; practices lack effectiveness which makes clients unsatisfied the received special education services. From the reviewed literatures, the indicators for effectiveness of special education teachers consist of 5 elements which are: 1) having the standard for professional practices (Council for Exceptional Children, 2010; William, 2014; Sullivan, 2015; Brownell & Sindelar, 2016), 2) Specific expertise (Allinder, 1994; Hocott, 1996; Brunsting et al., 2014), 3) Being a Professional Special Education Teacher (Heward, 2003; Carlson, 2004; Brownell & Sindelar, 2016), 4) Accurate Screening Exceptional Children, and 5) Early Intervention Strategies (Heward, 2003; Carlson, 2004; Brownell & Sindelar, 2016; Allinder, 1994; Jensen et al. , 2011).; Sullivan, 2015).

From the previous studies, there were various factors influencing the working effectiveness of special education teachers which could be divided into 2 levels: **Organizational level** which consists of 4 components: 1) School Leadership (Cook & Semmel, 1999;), 2) Environment Organization (Skaalvik and Sidsel Skaalvik, 2017; Day et al., 2007) 3) Collaboration (Lynne Cook, 2014; Olivos, 2011; Fiedler & Craig, 2000), and 4) Professional Learning Community: PLC (Kenrick, Neuberg, & Cialdini, R. B. ,2007).). **Personal level** consists of 3 components which are: 1) Self-Efficacy (Hagen et al, 1998 ; Podell, 2011; Caprara et al., 1996), 2) Professional Development (Little, 2004), and 3) Job Satisfaction (Day et al., 2007; Chiu, 2011). Therefore, studies of causal relationships among social sciences variables in researches must suitably be designed. The empirical data analysis is a method to answer the question

whether the causal model developed by the researcher agrees with the empirical data or not. There are various statistical analysis methods that help confirm or refuse a causal model, but popular and generally accepted methods are the Path Analysis and the Structural Equation Model: SEM. If there are various levels of the variables, the Multi-Level Structural Equation Model: MSEM is commonly used.

The study of the factor relationships that affect the working effectiveness of special education teachers will lead to the development of instructional processes for exceptional children to thoroughly gain opportunities and educational services with good quality and standard and in various forms in order to achieve the goal and meet the philosophy of special education provision so that people with disabilities will have wellbeing and be able to live happily together with other people in society as well as to truly shift their quality of life.

Research Objective

1. To develop a Multi-Level Structural Equation Model of the factors affecting the performance appraisal effectiveness of special education teachers.
2. To examine the congruence of the Multi-Level Structural Equation Model of the factors affecting the performance appraisal effectiveness of special education teachers and the empirical data.

Literature Review

1. Special Education Teacher Effectiveness

Special education teacher effectiveness play important role in student with special need for developing the potential of them and truly contribute to the enhancement of their quality of life. At a present, the special education services encountered different problems, namely the shortage of special education teachers. Special education teachers lack knowledge. Specialized techniques for personal development with special needs in each category Service recipients are not satisfied with the service they received. Therefore, the effectiveness of the performance of special education teachers is absolutely necessary for the development of learners with special needs. Special education teachers must be able to analyze the learner's potential and understand the learners individually. Have the knowledge and ability to teach specific subjects, such as using Braille, use of sign language, lip reading and able to evaluate the teaching and learning that is consistent with the learner's true and use the results to modify the teaching and learning to develop learners to their full potential (Ministry of Education, 2008)

2. The factors affecting the performance appraisal effectiveness of special education teachers

The effectivity of a person will have the association with the effectiveness of an organization leading to achievements of prescribed objectives, visions, and missions. Effectivity may be considered as 2 levels (Lawless, 1979; Mundel, 1983; Baird, Post, & Mahan, 1990; Bartol & Martin, 1991) which are:

2.1 Personal effectiveness is an individual character with working abilities to achieve the goal. It makes direct and complete outcomes prescribed in the objectives. It makes quality results such as the righteousness, value, and appropriateness that meet expectations and desires of the team, society, and implementers. It is resulted from efficient practices which mean practicing with satisfactions, full capability; with most suitable strategies and techniques to maximally achieve in both quantity and quality; and with the least capital, resources, and time.

2.2 Organizational effectiveness can be considered from many aspects which are: quantitative and qualitative products that meet the organization's desires; the proportion of used resources and the obtained products agrees with wants and expectations of members; flexible practices meeting situations; the development to increase potentiality and ability of the organization to be advanced in accordance with both internal and external environmental changes in the organization.

3. Overview of Multi-Level Structural Equation Model (MSEM)

Researches on social sciences can step from descriptive studies to causal phenomenal explanations gained from non-experimental research designs by using the techniques of the analysis of relationship structures among variables which can be differently called as Causal Analysis, Structural Equation Modeling (SEM), Linear Structural Relationships (LISREL), Confirmatory Factor Analysis, or Analysis of Covariance Structures. (Bentler, 1995; Joeskog & Sorbom, 1989)

The important principles of those mentioned techniques are composed of creating a causal model of the analysis of relationship structures among variables and applying empirical data to examine the appropriateness of the created model.

Research Methodology

This analysis of Multi-Level Structural Equation Model is a mixed methods research according to the ideas of Creswell & Plano Clark (2013).

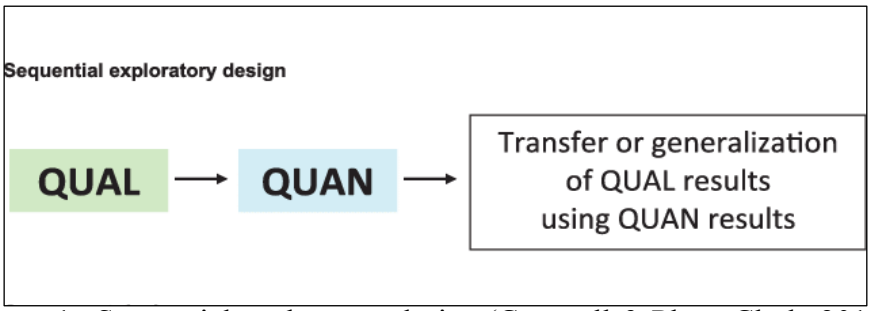


Figure 1: Sequential exploratory design (Creswell & Plano Clark, 2013)

1. Research Sample

1.1 Development of a Multi-Level Structural Equation Model that influence the working effectiveness of special education teachers: the target groups were 5 experts selected by using purposive sampling separated as 2 high rank executives from the Ministry of Education; 1 academician in a higher educational institute; and 2 executives of special education centers.

1.2 Congruence examination of the Multi-Level Structural Equation Model that factors affecting the special education teacher's performance appraisal effectiveness and empirical data: representative sample was executives and special education teachers working in special education centers, the size of the individual sample (Within) should be at least 200 samples. In this research, 1,120 people participated. Organizational level (Between) should be at least 20 samples (Hox, 1995). Therefore, 77 special education centers were engaged by implementing multi-stage sampling technique.

2. Research Instrument

2.1 A semi-structured interview form was applied to be considered and provided ideas significant content components, definitions, and indicators of the working effectivity of special education teachers and factors affecting the working effectiveness of special education teachers.

2.2 A questionnaire about the working effectivity of special education teachers and factors affecting the working effectiveness of special education teachers. It was a 5-level rating scale questionnaire.

Result

The Multi-Level Structural Equation Model of factors affecting the performance appraisal effectiveness of special education teachers : results from the analyzed data are as shown in Table 1 – 2 and the Figure 2.

Table 1 Results from the Within Analysis of Multi-Level Structural Equation Model of factors affecting the performance appraisal effectiveness of special education teachers. (Individual Level)

Dependent variable	Effect	Independent Variable			
		Emotional state (MT)	Self-efficacy (SEEW)	Professional Development (PDDW)	Job satisfaction (JSSW)
Self-efficacy (SEEW)	DE	0.101*	-	-	-
	IE	-	-	-	-
	TE	0.101*	-	-	-
	R^2	0.010	-	-	-
Professional Development (PDDW)	DE	-	0.886*	-	-
	IE	-	-	-	-
	TE	-	0.886*	-	-
	R^2	-	0.784	-	-
Job satisfaction (JSSW)	DE	0.104*	-	-	
	IE	-	-	-	-
	TE	0.104*	-	-	-
	R^2	0.011	-	-	-
Appraisal effectiveness (EFFW)	DE	-	0.273*	0.281*	0.276*
	IE	-	0.249*	-	-
	TE	-	0.522*	0.281*	0.276*
	R^2	-	0.230		

*p< .05,**p< .01 DE = Direct effect IE = Indirect effect TE = Total Effect
Form Table 1 When considering the causal relationship of variables that affect the effectiveness variables of the special education teachers (EFFw), it is found that; *(1)* The emotional state variable (MT) is the moderator variable between the self-potential latent variable (SEEW) with the total influence size which is a direct influence equal to .101 at the statistical significance level of .05, the reliability coefficient (R2) is .010. And the job satisfaction latency variable (JSSw) with the total influence size which is a direct influence equal to. 104 at the statistical significance level of .05, the reliability coefficient (R2) is .011. *(2)* Latent variable, self –efficacy (SEEw) affects the latent variables, the effectiveness of the performance of special education teachers (EFFw) with direct influence equal to .0273, indirect influence equal to. 249 and total influence equal to .522 at the statistical significance level of .05. Precision (R2) is .230.

In addition, self –efficacy variables affecting professional development latency variables have the total influence which is a direct influence equal to .886 at the statistical significance level of .05, the reliability coefficient (R2) is .784. *(3)* Latent variables in professional development (PDDw) affect latent variables in the effectiveness of performance of special education teachers (EFFw) with the total influence size which is a direct influence equal to .281 at the statistical significance level of .05. Noon (R2) is equal to .230. *(4)* Latent variable in job satisfaction (JSSw) affects the effectiveness variables of the special education teacher (EFFw) with the total influence size which is a direct influence equal to .276 at the statistical significance level of .05, the coefficient of reliability (R2) is equal to .230.

Table 2 Outcomes from the Within Analysis of Multi-Level Structural Equation Model of factors affecting the performance appraisal effectiveness of special

Dependent variable	Effect	Independent Variable			
		School leadership (LSSB)	Professional learning community (PLLB)	Environment organization (ENNB)	Collaboration (CLLB)
Professional learning community (PLLB)	DE	0.889*	-	-	-
	IE	-	-	-	-
	TE	0.889*	-	-	-
	R^2	0.790	-	-	-
Environment organization (ENNB)	DE	0.815*	-	-	-
	IE	-	-	-	-
	TE	0.815*	-	-	-
	R^2	0.696	-	-	-
Collaboration (CLLB)	DE	0.155*	-	-	-
	IE	-	-	-	-
	TE	0.155*	-	-	-
	R^2	0.024	-	-	-
Appraisal effectiveness (EFFW)	DE	0.108*	0.287*	0.438*	0.444*
	IE	0.681*	-	-	-
	TE	0.789*	0.287*	0.438*	0.444*
	R^2	0.483*			

education teachers. (Organizational Level)
*p< .05,**p< .01 DE = Direct effect IE = Indirect effect TE = Total Effect

Form Table 2 When considering the causal relationship of variables that affect the effectiveness variables of the special education teachers at the organizational level (EFFb), it is found that; *(1)* The latent variable in school leadership (LSSb) affects the latent variable in the performance of the special education teacher (EFFb). The direct influence is .108, the indirect influence is .681 and the total effect is .789 at the significance level. Statistical significance .05, Coefficient of reliability (R2) is .483. *(2)* The latent variables of the Professional Learning Community (PLLb) had an effect on the performance variables of the special education teachers (EFFb) with the total influence size which was a direct influence equal to .287 at the statistical significance level of .05. Coefficient of precision (R2) is .483. *(3)* The latent variables in the organizational environment (ENNb) affect the effectiveness variables of the special education teacher (EFFb) with the total influence size which is a direct influence equal to .438 at the statistical significance level of .05. (R2) is equal to .483. *(4)* The collaboration latency variable (CLLb) affects the latency variable of the performance of special education teachers (EFFb), with the total direct influence size equal to .444 at the statistical significance level of .05. Coefficient of precision (R2) is .483.

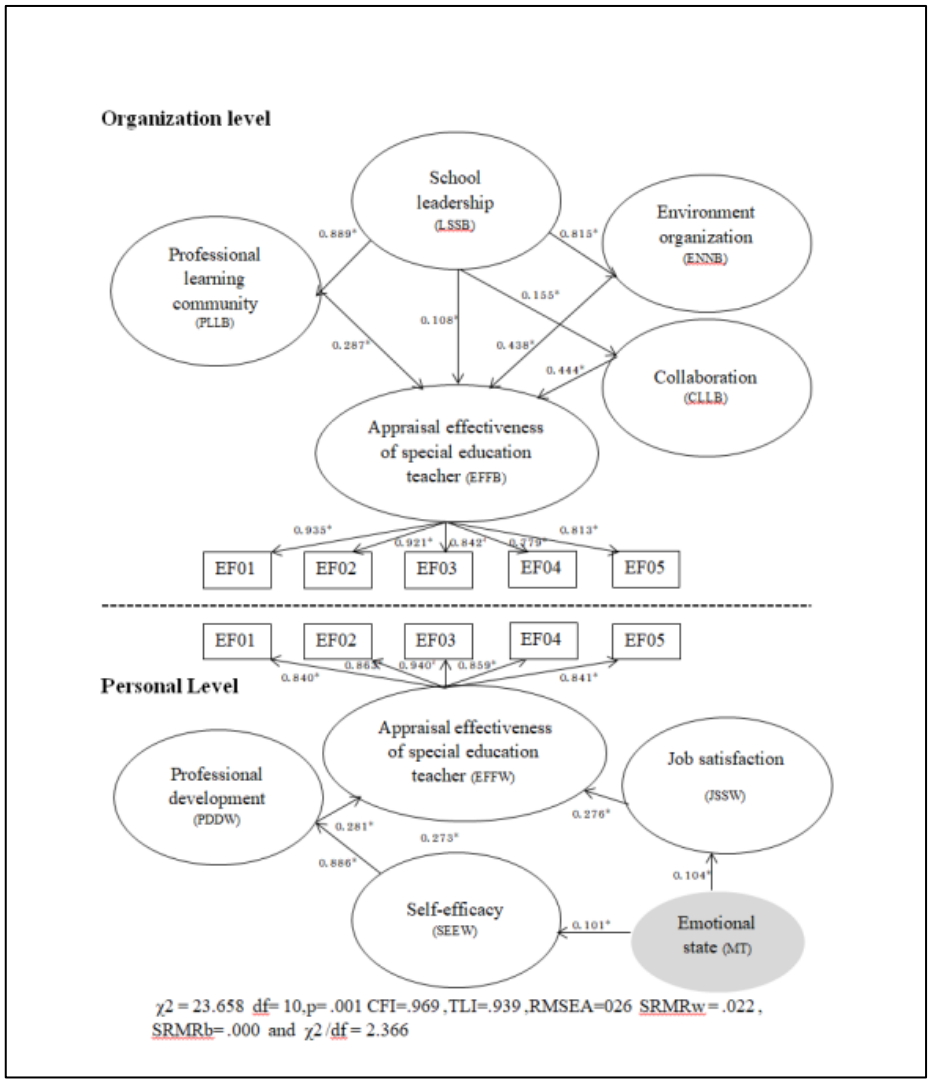


Figure 2 The Multi-Level Structural Equation Model of factors affecting the performance appraisal effectiveness of special education teachers.

Conclusions

The research results could be summarized that:
1. The development results of the Multi-Level Structural Equation Model of factors affecting the special education teacher's performance appraisal effectiveness: they were found that the effectiveness of special education teachers was composed of 5 elements which were:

1) having the standard for professional practices, 2) Specific expertise, 3) Being a Professional Special Education Teacher, 4) Accurate Screening Exceptional Children, and 5) Early Intervention Strategies. There were 7 studied causal variables with 25 components and by classifying the variables in accordance with the variable levels: organizational levels which were: educational institute leaderships, organizational environments, powerful participations, and professional learning community; individual levels which were: self-capability, professional development and satisfaction, and controlled variables which were emotional conditions.

2. The results of the congruence examination of Multi-Level Structural Equation Model of factors affecting the performance appraisal effectiveness of special education teachers: it was found that they met the empirical data which were construct validity which could be calculated:

Recommendations

From the outcomes of the research entitled Multi-Level Structural Equation Model of Factors Affecting the Performance Appraisal Effectiveness of Special Education Teachers, the researcher had recommendations as follows:
1. Executives should possess the characters of educational institute leaderships; show the special education teachers and staffs the willingness to provide assistances and supports in all perspectives, because the potentiality of special education teachers come from experiences and models. Should executives be good role models, special education teachers will have self-confidence, collaborations and can create concrete works.

2. Special Education teachers can bring the working effectivity of special education teachers which are composed of having the standard for professional practices, specific expertise, being a professional special education teacher, accurate screening exceptional children, and early intervention strategies to be analyzed in order to find outstanding or improvable points and then to improve the profession to meet self-aptitudes, self-interests, and wants of kids with exceptional needs; parents and the organization.

3. The development of special education teachers to gain good performances should be as both individual and organizational levels by providing both formal and informal learnings; improve the environments in the organization; have processes to create new knowledge and provide new experiences both within and outside the special education centers in order for the organizational advancements; as well as increase the self-potential confidence of the special education teachers through empowering, adapting, collaborating and activities that lead to new knowledge; and also continuously create

co-working works for the whole organization which will lead to the sustainable development.

Acknowledgements

This thesis is well completed with the truly kindness of Assoc. Prof. Dr. Kanokorn Somprach, the thesis advisor, and Assist. Prof. Dr. Jatuphum Ketchatturat the co-advisor, who provided suggestions and amended faults with good care; always supported and encouraged the researcher. My sincere thanks go to teachers at the Department of Educational Administration, Khon Kaen University; experts who examined the quality of all the instruments. At last, beneficial results, all goodness gained from studying this research go to my beloved parents and family. Should this research have any fault, the researcher will embrace it with high thankfulness.

Referrences

Allinder, R.M. (1994). *The relationship between efficacy and the instructional practices of special education teachers and consultants.* Teacher Education and Special Education, 17(2), 86–95.

Baird, L.S., Post, J.E., & Mahan, J.E. (1990). *Management: Functions and responsibilities.* NewYork: Harper and Row Publisher.

Bartol, K.M., & Martin, D.C. (1991). *Management.* New York: McGraw-Hill.

Bentler, P. M. (1995). Evaluating model fit. In R. H. Hoyle (Ed.), *Structural equation modeling: Concepts, issues, and applications* (p. 76–99). Sage Publications, Inc.

Brownell, M.T., Sindelar, P.T., Kiely, M.T., & Danielson, L.C. (2010). *Special education teacher quality and preparation: Exposing foundations, constructing a new model.* Exceptional Children, 76(3), 357–377.

Caprara et al., (1996). *A Tyrosyl-tRNA Synthetase Recognizes aConserved tRNA-like Structural Motifin the Group I Intron Catalytic Core.* Cell, 87(13), 1135–1145.

Carlson, E., & Lee, H. (2004). *Study of personnel needs in special education, paperwork substudy: Nonresponse component.* Rockville, MD: Westat.

Chiu. (2011). *Toward a Social Psychology of Globalization***.** Social Issues, 6(74), 663-676.

Council for Exceptional Children. (2010). *Council for exceptional children annual conference April 2010-Nashville.* Retrieved January 15, 2019, from https://education.ufl.edu/ncipp/council-for-exceptional-children-2010/

Cook, B.G., & Semmel, M.I. (1999). *Peer acceptance of included students with disabilities as a function of severity of disability and classroom composition.* The Journal of Special Education, 33(1), 50–61.

Creswell, J.W., & Plano Clark, V.L. (2007). *Designing and conducting mixed methods research.* Thousand Oaks, CA: Sage.

Day et al., (2007). *Teachers' professional learning goals in relation to teaching experience*. European Journal of Teacher Education, 40(4), 487-504

Skaalvik, Einar M. & Sidsel Skaalvik, (2017). *Motivated for teaching? Associations with school goal structure, teacher self-efficacy, job satisfaction and emotional exhaustion*. Teaching and Teacher Education, Volume 67, 152-160

Fiedler & Craig, (2000). *Making a difference: Advocacy competencies for special education professionals.* ERIC.

Gearheart, B.R., & Weishahn, M.W. (1980). *The handicapped student in the regular classroom.*2nd ed. St. Louis: Mosby. Hagen, K. M., Gutkin, T. B., Wilson, C. P., &

Oats, R. G. (1998). *Using vicarious experience and verbal persuasion to enhance self-efficacy in pre-service teachers:* "Priming the pump" for consultation. *School Psychology Quarterly, 13*(2), 169–178.

Heward, W.L. (2003). *Exceptional children: An introduction to special education.* 6th ed. Upper Saddle River, NJ: Merrill.

Hocutt, A.M. (1996). *Effectiveness of special education: Is placement the critical factor*. Future of Children, 6(1), 77–102.

Hox, J. (1995). *Applied Multilevel Analysis.* https://www.researchgate.net/publication/27706367

Joreskog, K. G., & Sorbom, D. (1989). Lisrel 7. *A guide to the program and applications (2nd ed.).* Chicago, Illinois: SPSS Inc.

Jensen, C. D., et al. (2011). *Effectiveness of motivational interviewing interventions for adolescent substance use behavior change: A meta-analytic review.* Journal of Consulting and Clinical Psychology, *79*(4), 433–440. https://doi.org/10.1037/a0023992

Kenrick, D. T., Neuberg, S. L., & Cialdini, R. B. (2007). *Social Psychology: Unraveling the Mystery.4th Edition.* Allyn and Bacon.

Lawless, D.J. (1979). *Organizational behavior.* 2nd ed. New Jersey: Prentice-Hall.

Little, J.W. (2004). *Looking at student work in the United States: Countervailing impulses in professional development. In C. Day & J. Sachs (eds.).*

International handbook on the continuing professional development of teachers. (pp. 94-118). Buckingham, UK: Open University Press.

Lynne Cook. (2014). *Interactions: collaboration skills for school*. on Amazon.com.

Ministry of Education, (2008). *Educational Management Act for People with Disabilities 2008.*Government Gazette, 125 (28a), 1-13.

Mundel, M.E. (1983). *Improving productivity and effectiveness.* New Jersey: Prentice-Hall.

Nelson C. Brunsting, Melissa A. Sreckovic, Kathleen Lynne Lane. (2014). *Special Education Teacher Burnout: A Synthesis of Research from 1979 to 2013*. Education and treatment of children 37(4), 681-711

Olivos, P.,& Aragones, J. I. (2011). *Psychometric properties of Environmental Identity Scale(EID).* Psychology, 2(1) , 65-74

Podell,J.L.(2011). *Assessing and treating child anxiety in schools.*Special Issue: Cognitive- Behavioral Therapy in the Schools.Volume48, Issue3.Pages 223-232.

Skaalvik, E.M., & Skaalvik, S. (2007). *Dimensions of teacher self-efficacy and relations with strain factors, perceived collective teacher efficacy, and teacher burnout.* Journal of Educational Psychology, 99(3), 611–625.

Sullivan, C.A. (2015). *The effectiveness of a special education teacher on meeting the needs of students with disabilities and meeting the common core state standards: A self-study.* Retrieved January 15, 2019, from http://digitalcommons.brockport.edu/cgi/viewcontent.cgi?article=1559&context=ehd_thesis

Williams.P. (2014). *Preschool – an arena for children's learning of social and cognitive knowledge*.Early Years. 34:3, 226-240.

Contact email: Vichuda.fairy2551@gmail.com
kanoklin@kku.ac.th
jketchatturat@hotmail.com

Pocket Translation Effectiveness in Real Life Communication Situations

Jeremy White, Ritsumeikan University, Japan
Ryosuke Yamanishi, Ritsumeikan University, Japan

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract
Continual internationalism has seen Japanese increase their interaction with people of various languages and cultural backgrounds for research, business, education, and trade. However, Japanese lack the English-speaking confidence to be effective communicators compared to other countries and are currently ranked 31st out of 36 in English proficiency (ETS, 2019). One reason for this is Japan being a monolingual, monocultural country where there is little opportunity to practice English in a natural setting. A second reason being the lack of English-speaking opportunities afforded to students during English language lessons due to the prevalence of the teacher-centered grammar-translation method of instruction. Recently the popularity of portable translation devices has increased, with people relying on these devices for their English communication activities due to their lack of confidence in their English speaking communication competence, and the investment in terms of time and money it would take to gain a high level of English speaking communication. However, as these portable translation devices are relatively new to the market, there remains many questions that need to be investigated. This paper will outline the results of an experiment using pocket translation devices between Japanese and international students. The authors will show that although pocket translation devices have advanced, their ability for seamless communication is still limited. The authors will then highlight ways in which users can be trained for more effective communication using pocket translations devices. Finally, the authors will show ways in which pocket translation devices could be used in an educational setting future.

Keywords: pocket translation, communication, education, innovative technology, Japan

iafor
The International Academic Forum
www.iafor.org

Introduction

The number of Japanese who require foreign languages has increased in recent years due to interactions in research, business, education, and trade. Coupled with this, the number of foreign tourists coming to Japan has reached record numbers (JTB Tourism Research & Consulting Co, 2019). This has created a need for a multilingual society and not, as has been the case to date in Japan, a society that focuses on a single foreign language. In addition to this, the number of Japanese travelling overseas to non-English speaking countries has also increased. Due to these reasons the use of translation devices has become common place with Japanese travelers, with some companies even offering rental services of these devices as a means of security. However, little research has been conducted into the actual practical applications of these devices in real life communication situations.

The study that follows will outline the results of a study of seven pairs of international and Japanese students using translation devices to complete real world communications situations. Results will show that although these devices did enable communication to take place, that there are several issues that need to be addressed before they can become flawless communication tools. This paper will conclude with suggestions as to how these devices could be used more effectively and even be used in the classroom in the future.

Literature Review

Japanese English communication abilities. Japan sits in the expanding circle of Kachru's (1985) model of English influence. The expanding circle consists of other countries such as China and Brazil who have English in their education system, but still lack the communicative competence to suggest that it is indeed a second language for the country. The outer circle, of which desire to enter, is for those countries that use English regularly for business and other daily life activities. The outer circle consists of countries such as Nigeria, India, and the Philippines. The inner circle is for those countries in which English is a native language such as New Zealand, Australia, and the United Kingdom. Japan is attempting to move inwards through the lowering of age of compulsory English education from twelve to ten years old in 2011 (MEXT, 2008), and more recently to eight years old (Japan Times, 2013). However, the increased exposure to English has seem to have had little effect on English communicative competence in Japan.

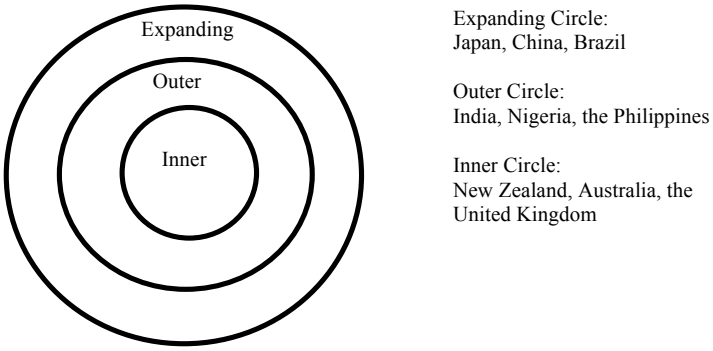


Figure 1: Kachru's three circles of English model (1985)

Japanese students. Japanese have a reputation for being silent, and passive learners in the classroom (Cheng, 2000). The cause of this passiveness is often traced back to cultural attributes, which could have a negative impact when required to make and deliver presentations or speak in pubic. When required to speak in public in a foreign language, Japanese can often shy away from the situation, leaving communication to a specialized guide if one is available. However, since the 2000s Japanese have increasingly travelled overseas by themselves due to amongst other things, the increased presence of low-cost airlines (LCCs), and the popular trends of backpacking, graduation trips, shopping trips, and budget short trips (Japan Times, 2018).

Methodology

This study was conducted at a private university in Western Japan. Fourteen international and Japanese students were recruited to participate in this research. The students were recruited by the researchers from classes they taught or research laboratories. The research was conducted outside of the classroom setting, and thus each participant was paid 1,000 Japanese yen for their participation. The participants were required to use a pocket translation device to complete a task as set out by the researchers. If the participants felt uncomfortable at any time during the research, they were informed of the possibility of ending their participation.

For the task, students were informed that they had been in a theoretical plane crash. Being one of the survivors after the crash the pairs of students needed to rank the materials needed for survival from most to least important. The participants were informed that they could only use the pocket translation device for communication. The ensue this was the case a physical barrier was created between the two participants to prevent any other form of non-verbal communication. The point of the research was to try and mimic a situation in which communication through discussions and decision making between people of different languages was a necessity. The researchers collected data in the form of videos of the sessions, observational notes, and the translation history of the pocket translation devices. For the purposes of this paper the observations of the researchers have been coded for a clearer understanding of the effectiveness of pocket translation devices for real world communication. Figure 1 shows the set-up of the experiment.

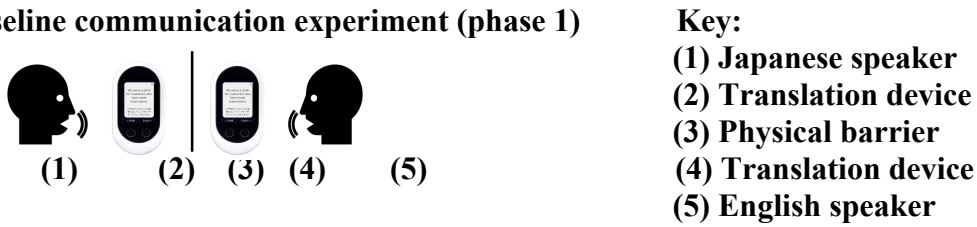


Figure 2: Communication experiment set-up

Results

The results of this research are divided into five sections: task, length of speaking, vocabulary use, accent, and speed of speech.

Task

As mentioned in the methodology the purpose of the task was for the groups to be in a situation where there was a need to be involved in a decision-making discussion with their partner. Without discussion the groups would not be able to complete the task within the time limit. The groups themselves were formed at random based on the availability of the participants. None of the groups knew each other before the task took place, thus we are able to rule out familiarity with group member as an influence in the decision-making process. A forty-minute time limit for each group was imposed to complete the task, however none of the seven groups required the entire forty minutes. The shortest time to complete the task was sixteen minutes while the longest group took 39 minutes. All seven groups were able to complete the task while only using a pocket translation device and no other form of non-verbal communication. The fact that all group were able to complete the task within the time limit suggests that translation devices are in fact a means of effective communication. An outline of the task is available in Appendix 1.

Group	Time to complete task
1	32 minutes
2	27 minutes
3	37 minutes
4	38 minutes
5	33 minutes
6	16 minutes
7	39 minutes

Figure 3: Task completion time by group

Length of speaking

The length of time speaking is the first aspect that had an effect on the real-life communication effectiveness. It was observed that the English speaker spoke considerably longer sentences into the translation device than the Japanese speaker. Overall the English speakers dominated the talk time, speaking for 60% of the overall talk time. This longer talk time inevitably led to longer sentences which in turn cause more translation mistakes when translation from English to Japanese. The Japanese speakers in contrast spoke shorter concise sentences which when translated assisted more effective Japanese to English communication.

Vocabulary use

Observations from the researchers showed that the Japanese speakers used more standard vocabulary than the English speakers. When speaking into the pocket translation device the Japanese speakers seemed to default to *hogen* (dialect), sometimes referred to as Tokyo dialect, which is considered standard to be the standard Japanese accent. This was beneficial for Japanese to English communication as the translator was able to understand the standard Japanese vocabulary used. In contrast to this the native English speakers used vocabulary based on their nationality. While the translation device did have setting for different types of English, it was difficult for the researchers to come to any conclusions as to the effectiveness of this

function. Due to the different vocabulary used the researchers were able to conclude that English to Japanese communication was less effective than Japanese to English communication.

Accent

In the aforementioned section on vocabulary use the researchers outlined how the use of *hogen*, Tokyo dialect, was thought to be responsible for the more efficient communication form Japanese to English when using a pocket translation device. The same conclusion has been made in regard to accent. As the *hogen* accent is standard the pocket translation device was easily able to understand what the Japanese speaker was trying to say, and more effectively translate it into English. However, the English speakers in this experiment came from a variety of countries; the United States of America, Indonesian, Malaysia, South Korea, China, and Mexico. Each speaker had an accent that was different. The translation device had issues understanding some of the vocabulary from these speakers, especially related to the understanding of minimal pairs. Minimal pairs being words that sound similar but have a different meaning. An example of this would be /*map/* and /*mat/*. Only the final consonant differs between the two, but when translated incorrectly the misunderstanding could have a big effect on effect communication. For example, the English speaker in one of the groups said; "I think the map should be number five", which was translated by the translation device as "I think the mat should be number five." As the was also a mat available to the group this caused some confusion.

Speed of Speech

The speed in which the participants spoke also seemed to have an effect on the effectiveness of the translation. The Japanese speakers in general spoke at a standard speed when speaking into the translation devices. The researchers noted the speed of the Japanese participants actual speech was usually quicker than how they spoke into the translation device. In contrast the English speakers at first made little effort to reduce the speed at which they spoke. They spoke into the devices as if they were attempting to have a real-life face to face conversation. The difference in speed on many occasions meant that the Japanese to English translations were more effective than the English to Japanese translations. It should be noted that the English speakers were in many instances able to realize that their translation was ineffective and took measures to rectify the situation by slowing down their rate of speech.

Overall discussion

From the above it can be seen that the use of pocket translation devices is currently more effective from Japanese to English than English to Japanese. The researchers believe this may be due to the Japanese participants having more experience using translation devices in their daily life compared to the English speakers. This was most noticeable in the uses of standard Japanese for input into the device rather than the dialect the participant was most accustomed to from their upbringing. The fact that all the Japanese participants switched to standard Japanese from the outset suggests that they were previously aware of the issue of translation devices understanding their Japanese and chose to adjust their way of speaking accordingly.

In this study the researchers have attempted to answer the question as to if translation devices are effective for real life communication situations. It is the belief of the researchers that they are in fact able to facilitate communication at a basic level, as all groups were able to complete the assigned task within the timeframe. However, the researchers believe that while translation devices have improved that there is a need to consider the language used by the English speaker, and more variation of accents should be taken into account. This was especially apparent in this study where six of the seven English speakers come from countries were English is not a native language. In addition to this the devices are unable to tell what emotion the speaker exhibiting, a telling issue when the communication is not face to face.

For these devices to become more effective the researchers believe that students should be trained on how to use them more effectively. This training would address some of the issues heighted about with regard to accent, vocabulary selection, and speed of speech. If these issues are addressed at the classroom level then the researchers believe the use of these devices in business, educations, and other daily life situations could become more flawless.

Limitations

There are a few limitations in this study that need to be addressed. Firstly, the situation of a plane crash is somewhat unrealistic and forced. A more natural conversation may have provided increased accuracy in regard to the language used during discussion. Secondly, this is a small sample of just seven groups. To ensure the data is indeed correct the research will need to repeat this study with a larger group of participants. Finally, it was inevitable that the participants had some understanding of the other language being spoken without listening to the translation. Although participants were instructed to disregard this input it is impossible to tell if this was indeed the case.

Conclusion

Translation devices are becoming more commonplace in everyday settings due to the increased functionality and portability of these devices. This means that the use of the devices may in fact help Japan move inward in English influence in the world. However, while the use of these devices has been shown in this research as a legitimate means of completing a task, there still remains issues related to how these devices accommodate different vocabulary, accents, and speed. This research has demonstrated that using these devices for Japanese to English translation is much more effective than English to Japanese translation. The researchers concluded that this difference was due to the accent, speed, and vocabulary used by the English speakers. For these devices to facilitate flawless communication the makers will need to address the above issues, and those in the education field should provide training for users. Translation devices have advanced in their technology and portability; however, questions still remain as to whether these devices can be used for flawless communication in the future.

References

Cheng, X. (2000). Asian students' reticence revisited. *System*, 28 (3), 435-446.
ETS. (2019). *TOFEL test and score data*. Retrieved 2020 27-01 from ETS TEOFL: https://www.ets.org/s/toefl/pdf/toefl_tsds_data.pdf

JTB Tourism Research & Consulting Co (2019) Overseas Residents' Visits to Japan, Tourism Statistics. Retrieved 2020-1-27 https://www.tourism.jp/en/tourism-database/stats/inbound/#annual

Japan Times (2018) Today's young Japanese have a different take on travel abroad https://www.nippon.com/en/currents/d00432/today%E2%80%99s-young-japanese-have-a-different-take-on-travel-abroad.html

Kachru, B. (1985). English in the world: Teaching and learning the language and literature. In R. W. Quirk, *Standards, codification and sociolinguistic realism: The English language in the Outer Circle* (pp. 11-33). Cambridge: Cambridge University Press.

Ministry of Education, Culture, Sports, Science and Technology. (2008). *2008 White Paper on Education, Culture, Sports, Science and Technology*. Retrieved 2011 1-6 from MEXT: http://www.mext.go.jp/english/whitepaper/index.htm

Correction Notice (November 24, 2024)
Appendix 1 has been removed from the article.

A Case Study on the Use of Theater as a Tool in Promoting Positive Discipline for Children in Ozamiz City

Felimon Bonita Blanco, La Salle University, Philippines

The Southeast Asian Conference on Education 2020
Official Conference Proceedings

Abstract
The study aims to present a qualitative descriptive inquiry in using theater as tool in educating communities on positive discipline for children. It seeks to know the impact of play to the parents and family heads in relation to positive discipline for children. The study uses the Social Learning Theory of Albert Bandura as the main framework of the study. Case study was adopted as tradition of inquiry in this study. Participants of the study were ten (10) parents who watched the play staged in their barangay. The study revealed that the use of theater is an effective tool in conveying message/issues to the community. It revealed also that communities prefer theater over traditional lecture as method to educate the communities. The results of the study also showed that staging plays leaves an impact to the parents and family heads in relation to positive discipline for children. This case study concludes that the participants have varied perspectives on the use of theater to impart messages to its audience. Secondly, the use of theater is indeed an effective tool to convey message/issues to educate to the communities. Theater, being live art, easily connects with the audience, thus, learning of the message is easier and clearer. And finally, the play changes some mindset among parents in relation to corporal punishment and positive discipline for children.

Keywords: theater in education, positive discipline for children, educational theater, social learning theory, teatro guindegan, la sale university

iafor
The International Academic Forum
www.iafor.org

Introduction

Theater is considered to be a collaborative form of art. This is because it employs the use of all other art forms. It uses dance for scenes that need choreography and movement. It uses music for background and accompaniment. It uses visual arts and architecture in the case of set design and stage construction. It uses literature for the dramatic texts used in the performance. And recently, theater employs film or multimedia to support specific scenes on stage. Thus, we can say that theater is the convergence of all arts. Theater is an activity where interacting persons mimicking some action present themselves to another group of persons. These two groups are separated – one acting the other watching – of which the latter performs in an imagined time and space (Fernandez, 2007).

For centuries, the practice of theater has been an indispensable part of human expression in all cultures. It has been said that theater was the earliest form of entertainment, as the first human invention. Stephanie Arnold (1998) in the book *The Creative Spirit* stated that human beings reflect on their new experiences and imagine new possibilities through theater. She further added that making theater is a way of understanding the world around us and our place in it. Theatre cannot be imprisoned inside theatrical buildings, just as religion cannot be imprisoned inside churches, the language of theatre and its forms of expression cannot be the private property of actors, just as religious practice cannot be appropriated by priests as theirs alone (Boal, 1998).

Theater has been used in many cases as an effective tool to educate communities regarding social issues and health practices. In Africa, the use of theater has been employed to increase educational awareness on HIV/AIDS cases. In India, the use of theater (forum theater in particular) is also used to raise awareness on health education among rural communities. In a study published in the Perspectives by the African American Research entitled *Theater as a Tool to Educate African Americans about HIV/AIDS: The Role of Historically Black Colleges in Addressing the AIDS Epidemic in the African American Community*, the researchers noted on theater's ability to provide opportunities to recreate reality in a safe environment in order to explore possibilities for change (Nina Smith, 2010). They further stated that through theater different life roles can be experimented and new behaviors can be explored to promote positive life changes.

Initially, the use of theatre in a development environment has involved performing plays to convey strong social messages, with little or no audience participation. Gradually, the potential of theatre as a platform of discussion and of exploring pertinent issues within a particular community is being realized (Scott-Danter, 1999). In the project report of Health on Stage organized by Asia Europe Foundation and FSL India in India, the project evaluators concluded that forum theatre can be an effective way to raise awareness and to create a dialogue about water-related issues in communities in India (Asia Europe Foundation, 2011).

It is through these that the researcher conducted this study to assess whether theater is an effective tool in educating the communities on positive discipline for children. This study was aimed at determining also the impact of the performances of *Istoryahe*

Lang Ko to the change of personal, relational and familial perspectives of positive discipline for children.

Background of the Study

Teatro Guindegan, the resident theater company of La Salle University, signed a contract with Philippine Educational Theater Association (PETA) in 2013 for an advocacy campaign on positive discipline for children, as part of PETA Advocate Right to Safety Zone for Children Project (PETA ARTS Zone). This engagement was under the Gabay Teatro Program on Social Transformation of the company. The group adapted Liza Magtoto's Rated PG play into a local Cebuano version called *Istoryahe Lang Ko*. The final outputs of the engagement were the performances of the play to ten (10) select barangays in the City of Ozamiz. *Istoryahe Lang Ko* tackled the stories of corporal punishment vis-à-vis positive discipline.

This study, which is descriptive in nature, is designed to gather information from the participants to know whether theater is indeed effective as tool to be used in educating communities about positive discipline for children. In like manner, the study seeks to determine whether the play itself has created changes to the personal, relational and familial perspectives to positive discipline for children.

The researcher limits the study to select parents from the barangays through semi-structured interviews. Parents are selected as participants since they are the major players in discipline practices in the households.

The study seeks to determine the use of theater as an effective tool in educating the communities on positive discipline for children. It likewise seeks to know if the play *Istoryahe Lang Ko* has impacts to parents and family relations.

This research study will add on to the bodies of researches proving the effective use of theater as a tool in communicating or conveying message to the communities. This study will be of great significance to civil society organizations (both national and international) who are looking for appropriate strategies and methodologies to convey message or to educate communities. In like manner, this study will be of importance to theater practitioners who focus in using theater in their advocacy works in the communities.

The main case being studied here is the participants' experience in watching the performance of *Istoryahe Lang Ko*, which is an advocacy play on positive discipline for children. The participants of this study are limited only to parents or adults who have watched the performance. Children as participants is a limitation of the study. This research is mainly focused on parents or adults because they are the key players in children discipline practices in the communities.

Literature Review

Drama is probably a more recent art than painting or singing because of its complexity: it is an activity that requires many people (often in the hundreds) with different skills, all working together – not to mention the large group of people who gather at one place at one time to witness it. Drama is a public art, requiring, in

addition to the inspiration and skill demanded of all artistic creation, a sophistication of social organization (Cohen, 2000).

The scholarly ties between a theater and its culture expand well past simply political concerns: specifically, the theater has at some time served as a ground for the discourse of each social issue possible. In modern times, Cohen (2000) noted that theatre has been used to discuss issues such as alcoholism, homosexuality, venereal disease, prostitution, public education, racial prejudice, capital punishment, thought control, prison reform, character assassination, civil equality, political corruption, and military excess. He further added that the best of these productions have exhibited these issues in all of its complexity and have extended solutions not as dogma but as food for thought – for great theatre has never sought to purvey pure propaganda. He further added that theatre is in a strong position to force and focus public confrontation with social issues. It succeeds in bringing the audience into touch with its own thoughts and feelings about those issues.

It is particularly the collective and public nature of the theatre that makes it such a potent social force. The theatre is a gathering place for the public presentation of ideas. It creates an intensely emotional experience for the audience. This is because ideas are expressed through characters caught in difficult or dangerous situations. More so, the impact of the work is then magnified by the number of people present; in this case, the audience that watch the performance. A collective emotional response is a force of enormous energy and can function in different ways. It can become a collective sigh of relief, an emotional release. Sometimes when a group of people have laughed very hard together or cried together, they feel that they can more easily accept the difficulties of their daily lives or the pressures that face the entire community (Arnold, 1998). She further added that theatre can be part of social debate, part of the free exchange of ideas, or it can be used for the dissemination of propaganda.

Cohen (2000) stated that theatre is a storehouse of pleasures. He further added that theatre includes any form of drama that profoundly stirs our feelings and heightens our awareness of the human conditions. Entertainment in theatre means “that which holds the attention.”

Theatre is live and human: it uses voice, speech, language, the body and emotion. It brings life and human reality to the audience as well as players. It makes people think and respond. We are all actors playing different roles in our lives, and the world is our stage (UNESCO-CCIVS Project, 2006). Moreover, theatre groups can create space for storytelling and discussion. Theatre can convey information and still remain popular and entertaining too.

In the book ACT, LEARN AND TEACH: Theatre, HIV and AIDS Toolkit for Youth in Africa, the collective authors at UNESCO-CCIVS listed the positive impact of theatre:

1. Grab the attention and interest of a great number of people. This is because theatre is performed live and based on reality. It combines oral communication, physical expression, dance, image, music and song, which work together to maintain people’s interest over time.
2. Bring people together to openly discuss a problem.

3. Arouse strong emotions. The whole person is involved when participating in a drama – the mind, emotions, prejudices and passions; therefore, the experience and learning is not easily forgotten.
4. Be adapted to local realities, because plays can be performed anywhere, at any time and in local languages presenting real life situation.
5. Sensitize a community on priority issues and create collective ownership of individual stories.
6. Promote tolerance and mutual understanding by allowing the audience or actors to experience a different point-of-view or a role.
7. Encourage participation and self-expression, especially from those who often go unheard.
8. Provide entertainment! Many people learn best while enjoying themselves.

Theatre reaches the heart and the mind in a way that reading a pamphlet or listening to a speech likely will not. What happens to the characters, and the emotions one feels while participating in a Forum Theatre scenario, strikes people in a unique way and will likely be remembered long after the play ends (UNESCO-CCIVS Project, 2006).

Theatre offers entertainment while at the same time providing education to its audience. It has a strong power of persuasion. Entertainment-education dramas can persuade because they show characters who change their behavior to improve their lives. Stories have unique power and nuance to describe people's behavior and interactions, and their consequences. When audience members see that they could be in the same situation as the characters, stories can move them to change, too. E-E is particularly able to influence behavior rooted in traditions that are hard to change (de Fossard, 2008). E-E uses various forms of entertainment. Dramas on radio and TV, animated cartoons, popular songs, street theater, and other formats can both educate and motivate as they entertain. In E-E, there is no clear demarcation line between entertainment and education. The two should be seamlessly woven together.

E-E uses drama, music, or other communication formats that engage the emotions to inform audiences and change attitudes, behavior, and social norms. It engages the emotions as well as the intellect. This helps explain its power to change behavior. It can evoke a range of emotions. Entertainment is more than amusement. An emotional reaction often leads people to reflect about themselves and their own attitudes and behavior. At the same time, E-E presents role models who can show the audience how to adopt healthy behaviors.

Audiences identify with characters and settings. Audiences respond emotionally to E-E that is realistic, culturally appropriate, and creatively produced (de Fossard, 2008). When characters express their feelings, or when the story itself is dramatic, the audience responds emotionally. The audience feels a sense of empathy, and characters come to seem like friends. When characters face a problem that evokes emotion, audience members who identify and empathize with them may be motivated to solve similar problems in their own lives in a similar way.

Seeing how the characters in a drama solve problems can give audiences the sense that they, too, can control their lives and solve these problems. This sense of being in control and able to solve problems is called self-efficacy. Observing the success of others and trying new behavior and succeeding can lead to self-efficacy. Thus

audiences come to believe in their own ability to change and to succeed like the characters in a story.

Papa (2000) stressed that entertainment-education provides the general community with examples of behavior for modelling which can be either desirable and undesirable attitudes enacted by media characters that are either appealing or non-appealing for the masses. He further explained that the process of change takes place when people in the group share their own stories about coping up with same experienced problems. In the same line, there is another function of the use of theater; that is to educate the communities.

Theatre productions are entertaining for young children, pre-teens and even adults. Many of the evaluations of live theatre productions as an educational method have found a positive influence on knowledge and behavioral intentions. Despite its considerable use, the effectiveness of live theatre as an educational method with children has been minimally explored in the literature to date, and the available evidence is of differing quality which limits these findings (Child Health Promotion Research Centre, 2012).

Theatre productions may also be used as a springboard for dialogue about the issue post-performance. It can be a platform to find solutions, ways and means to solve issues in the communities. Theatre can be a strategy to combat issues of corporal punishment especially in rural communities.

One of the local action initiatives of the PETA partners of the first cycle of ARTSZone for Children Project was the the stage play *Sang Upuan Lang (Just a Sit Down)* by the Mariano Marcos Memorial High School in Santa Ana, Manila. Balanon (2012) observed that different parents practice different methods of discipling their children, which often led to corporal punishment. She further added that after the parents watched the play, they realized that positive discipline is the proper way to discipline the children.

Theater, in various forms and styles, is used to effectively convey message to the communities without having the need to forcefully inject into the consciousness of the audience. The theater performance provides platform for choices of decisions on the issues at hand. The audience is given the power and freedom to decide which will be taken and which will be not. Theater develops critical thinking and judgement among the viewers. Accordingly, it offers opportunities for debates and discussions over issues that directly affect the social communities.

In past studies and practices, the use of theater has been proven to be effective in communication and education. It offers great potentials for the education of the communities on certain issues and problems because of its power to challenge and question decisions of the people. The ephemeral nature of theater makes it an interesting form to use to stir discussions of social isssues in the communities.

Theoretical Framework

This research used Social Learning Theory of Albert Bandura as the main theoretical framework of this study.

The major premise of Social Learning Theory is that people can learn by observing others. The theory hypothesizes that people learn from one another, via observation, imitation, and modeling. In the online article entitled *Social Learning Theory* (Joey Lee, 2016), the authors listed the necessary conditions for effective modelling: Attention, Retention, Reproduction, Motivation.

Bandura's theory suggests that people learn through a process. First is attention; people focus on someone or something. Second is retention; people store information from what has been observed. Third is reproduction; people perform the same observed behavior. Fourth is motivation; people are motivated to imitate the modeled behavior.

Schunk (1996) mentioned that Bandura's work should do a good deal to increase our awareness of the importance of models in child-rearing and education. Teachers or parents teach by example which can be influential modelling. If a parent spanks a child (attention), then this will give a child an idea how spanking can physically control other people (retention). If the same child spanks someone younger than him/her (reproduction), and enjoys in the process then he acquired such behavior through modelling (motivation).

In the same line, observational learning is one of the more important concepts in social learning theory. Once a new behavior is acquired through the process of observation, then learning is said to be cognitive. O'Rorke (2006) stressed that observation teaches us the probable consequences of new behavior; we notice what happens when others try it. Observational learning can occur through observation of modeled behavior with the accompanying cognitive activities.

Bandura believed in "reciprocal determinism"; that the world and person's behavior cause each other. Behaviorism states that the person's environment causes the person's behavior. Further, Bandura suggested that behavior causes environment. He then later considered personality as an interaction of three components: environment, behavior and psychological processes.

In his book *Social Learning Theory*, Bandura (1971) stressed that behavior partly creates the environment, and the resultant environment influences behavior. In this two-way causal process, the environment is just as influenceable as the behavior it controls.

The three factors environment, people and behavior are constantly influencing each other. It is said that behavior is not simply the result of the environment and the person, just as the environment is not simply the result of the person and behavior. The environment offers models for behavior. Observational learning occurs when a person watches the actions of another person and the reinforcements that the person receives (TCW, n.d.).

Method

This case study on the use of theater as effective tool in educating the communities used qualitative research approach. A case study was employed to gain understanding of the use of theater as effective tool to convey message / social issue or educate the

general population. Case studies are conducted for post-facto (after the event) studies, rather than ongoing issues or questions.

Interview data collection was employed to obtain the necessary data from the select key informants. The researcher used semi-structured interview. The researcher has identified key questions to outline the research interest, but it also opened for probing far beyond the answers from the prepared questions. The method was conducted through individual, face-to-face interviews using an interview guide.

Purposive sampling was used in the selection of participants. This means that the researcher specified certain criteria in selecting the key informants. Below are the criteria used:

1. There shall be 10 target informants (one from every barangay where the play was performed).
2. The informants must have watched the performance of Istoryahe Lang Ko.
3. The informants must be parents already (either father or mother).

Findings of the Study

The participants of this study proved that the use of theater is an effective tool in conveying message/issues to the community than traditional lectures.

The study revealed that community like theater because (a) it is educational, (b) it has purposes, (c) it can entertain, (d) it has lessons, (e) it is a good strategy, and (f) it can get the focus or attention of the community.

Theater is an effective tool in conveying message because it captures audience attention; the audience can easily connect with the message being presented. Theater is performed live, hence, easier to interpret and understand. To them, theater is a like a reflection; it makes the audience easily react, interact and recognize the situation. It develops internalizations of the message that is being given to them. Theater makes people active and alive. The perspectives of participants toward use of theater in educating communities is anchored on their experience in watching the play *Istoryahe Lang Ko*.

The findings validate the previous researchers on the effects of theater among community people. According to UNESCO-CCIVS Project (2006) theater provides entertainment; in which many people learn best while enjoying themselves. This also validates previous researches made on the use of theater as effective tool in educating communities: on the effects of smoking, fruit and vegetable consumption (Child Health Promotion Research Centre, 2012); on increasing AIDS awareness in Africa (Harvey, Stuart & Swan, 2000) among others.

The play *Istoryahe Lang Ko* leaves an impact to the parents and family in relation to positive discipline for children. The participants revealed that after watching the play the parents (a) understood better how to discipline their children and realized that punishing is not a direcy discipline, (b) learned the value of respect inside the family, and (c) were entertained and inspired but somehow emotionally touched.

They learned that to discipline is a child is not to punish immediately, but to talk to the child and explain the mistake/fault. The communities even proposed that this type of play should be presented during pre-wedding seminars in order to expose the young couple for ideal child discipline practices just before they enter into marriage. However, the participants also revealed that there are still some forms of corporal punishment among children that happened in their barangays. Corporal punishment practices cannot be immediately stopped because the campaign for positive discipline for children needs to be more strengthened in the barangay level.

This finding validates the study of PETA on the impact of the play Rated PG to corporal punishment and positive discipline. As Ochoa, Yacat & Torre (2014) pointed out that the play seemed to be effective in improving the favorability of positive discipline than in lowering the endorsement of corporal punishment. This also validates the research findings that theater opens the way for discussions among people. Theatre productions, according to Child Health Promotion Research Centre (2012), may also be used as a springboard for dialogue about the issue post-performance. However, as Ochoa, Yacat & Torre (2014) noted that there is a need for widespread dissemination of the advocacy. They said that there are indeed more works to be done in this aspect.

Conclusion

After conducting the study and interpreting the findings, the researcher has come up with the following conclusions:

1. The participants have varied characteristics and perspectives on the use of theater to impart message to its audience.
2. The participants revealed that the use of theater is highly effective in conveying message/issues to educate the communities. The live performance in theater captures audience attention making the message easier to understand.
3. The participants of the study reported that the play *Istoryahe Lang Ko* leaves an impact to parents who watched the performances in the barangays. The play educates them that disciplining means talking and explaining to the children the mistakes they committed. However, they affirmed also that there are still few reported cases of corporal punishment in their respective barangays.

References

Alampay, L. P. (2014). *Parenting in the Philippines. In H. Selin and P. Schvanevelds Parenting Across Cultures: Childrearing, Motherhood and Fatherhood in Non-Western Cultures.* The Netherlands: Springer.

Arnold, S. (1998). *THE CREATIVE SPIRIT An Introduction to Theatre.* Mountain View, CA: Mayfield Publishing Company.

Asia Europe Foundation. (2011). *Health on Stage Evaluation Report.* Singapore: ASEF.

B. Harvey, J. S. (2000). Evaluation of a drama-in-education programme to increase AIDS awareness in South African high schools: a randomized community intervention trial. *International Journal of STD & AIDS*.

Balanon, F. (2012). *Rated P3G Pamilya, Paaralan, at Pamayanan: A PETA Cultural Campaign.* Quezon City: Philippine Educational Theater Association.

Bandura, A. (1971). *Social Learning Theory.* New York City: General Learning Press.

Boal, A. (1998). *LEGISLATIVE THEATRE Using performance to make politics.* London: Routledge.

Bruce Berg, H. L. (2012). *Qualitative Research Methods for the Social Sciences.* Upper Saddle River, NJ: Pearson.

Child Health Promotion Research Centre. (2012). *The use of Theatre in Education (TIE): A review of the evidence.* Australia: Edith Cowan University.

Cohen, R. (2000). *Theatre 5th edition.* Mountain View, CA: Mayfield Publishing Company.

Cresnel, J. (2007). *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research (3rd ed.).* Upper Saddle River, NJ: Prentice Hall.

de Fossard, E. L. (2008). *Entertainment-Education for Better Health INFO Reports, No. 17.*

Baltimore, MD: INFO Project, Johns Hopkins Bloomberg School of Public.

Eslit, N. (2014). *Positive Discipline Research in Ozamiz Coty.* Ozamiz City: Gitib, Inc.

Fernandez, S. P. (2007). *MAKING THEATRE the craft of the stage.* Iligan City: IPAG.

Gershoff, E. (2002, June 26). *Is Corporal Punishment an Effective Means of Discipline?* Retrieved from American Psychological Association: http://www.apa.org/news/press/releases/2002/06/spanking.aspx

Gill, P. e. (2008, March 22). *Methods of data collection in qualitative research: interviews and focus groups*. Retrieved from British Dental Journal: http://www.nature.com/bdj/journal/v204/n6/full/bdj.2008.192.html

Gonzales, C., & Nicdao, R. (2016). *PD+ A Handbook on Positive Discipline.* Quezon City: PETA.

Joey Lee, J. N. (2016). *Social Learning Theory*. Retrieved from Learning Theories: https://www.learning-theories.com/social-learning-theory-bandura.html

Nelsen, J. (2016). *Child Discipline: To Punish or Not*. Retrieved from Positive Discipline: https://www.positivediscipline.com/articles/child-discipline-punish-or-not

Nicdao, R. (2016). *Nature, Goals, and Stragegies of Positive Discipline.* Quezon City: PETA.

Nina Smith, J. N.-B. (2010). Theater as a Tool to Educate African Americans about HIV/AIDS: The Role of Historically Black Colleges in Addressing the AIDS Epidemic in the African American Community. *Perspectives*, 71.

O'Rorke, K. (2006). Social Learning Theory & Mass Communication. *ABEA Journal*, 72-74.

Ochoa, D. P., & Torre, B. A. (2016). *Parenting Research in the Philippines: A Review of Literature from 2004-2014.* Quezon City: PETA.

Ochoa, D., Yacat, J., & Torre, B. (2014). *Theater as advocacy: The influence of Rated PG on children and adult viewers' endorsement of corporal punishment (CP) and positive discipline (PD).* Quezon City: Philippine Educational Theater Association.

Papa, M. S. (2000). Entertainment-Education and Social Change: An Analysis of Parasocial Interaction, Social Learning, Collective Efficacy, and Paradoxical Communication. *Journal of Communication*, 31-55.

Save The Children. (1999). *Educate, don't punish!* Coimoff S.A.

Schunk, D. H. (1996). *Learning Theories: an educational perspective 2nd edition.* Englewood Cliffs, NJ:: Prentice-Hall.

Scott-Danter, H. (1999). Theatre for development: a dynamic tool for change. *FORCED MIGRATION*, 24.

TCW, T. (n.d.). *Social Cognitive Theory*. Retrieved from University of Twente: https://www.utwente.nl/cw/theorieenoverzicht/Theory%20Clusters/Health%20Communication/Social_cognitive_theory/

UNESCO-CCIVS Project. (2006). *ACT, LEARN AND TEACH: Theatre, HIV and AIDS Toolkit for Youth in Africa.* Italy: UNESCO.

Wong, P. (2016). *Theatre for Social Change and Development.* Retrieved from Academia: https://www.academia.edu/6137582/Theatre_for_Social_Change_and_Development

Contact email: fbb1973@gmail.com

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