



Symposium Proceedings

RIHED SEA-HiEd Inter-Regional RESEARCH SYMPOSIUM

14–15 November 2019

Hotel Nikko | Bangkok, Thailand

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About the Symposium

Introduction

As part of SEAMEO RIHEDs 60th Anniversary Celebrations this year, the 2019 Southeast Asian Higher Education (SEA-HiEd) Inter-regional Research Symposium will be held on 14-15 November 2019 at the Hotel Nikko in Bangkok, Thailand. The Research Symposium will bring together new and experienced researchers to explore the current state and future direction of higher education and development in the areas of inclusive and accessible quality higher education, entrepreneurship and employability, digitalisation and international and cross-border higher education.

The two-day programme consists of 3 components: plenary keynote presentations, presentations of original research papers and an academic poster session. The Symposium is open to participants in Southeast Asia and other regions of the world interested in gaining new perspectives and knowledge as well as those who want to share their research and recent achievements. The Research Symposium will thus help to facilitate discussion on new original research, strengthen research community partnerships and provide opportunities for emerging as well as leading researchers in their respective fields to promote inter-disciplinary collaboration.

Objectives

The Research Symposium will bring together researchers, academics, educators, graduate students and other stakeholders in higher education to:

- present and discuss results of new original research and findings from their experience at

different national and regional levels with their peers;

- strengthen knowledge sharing networks amongst researchers, academia and other partners in higher education and development; and

- foster dialogue about research community partnerships and provide opportunities for emerging as well as leading researchers to promote research and inter-disciplinary collaboration.

Guiding Themes

The Research Symposium aims to contribute to the current body of analytical work dealing with sustainable development and higher education, by addressing several current themes that are both persistent, including those that may already be in discussion or looming on the horizon, and those that could benefit from a deeper understanding from different national and regional perspectives to fill existing gaps in knowledge.

Higher education today can serve as a powerful means of creating a more sustainable present and future. In this context, technological advancements and changes in workforce demand are creating new possibilities for teaching and learning with emphasis being placed on harnessing entrepreneurial talents and embracing innovation-driven developments. Opportunities for international collaboration and partnerships are also increasing with great strides in cross-border higher education and academic mobility.

This has also renewed emphasis on quality enhancement, international cooperation and digital higher education for university leaders, academic and administrative staff and students alike.

With this background in mind, four (4) interconnected sub-themes of current concern have been identified:

Inclusive and Accessible Quality Higher Education

In contributing to an equitable and ecologically sound future, higher education has a key role to play. This means ensuring that higher education is inclusive, open to people of all backgrounds and ages and that higher education institutions are themselves connected with their communities to help improve access, quality and the relevance of what is taught and learned. Several key areas of interest include ensuring quality lifelong learning and looking at inclusion and accessibility as well as equality and equity through different lenses such as gender or conditioned mobility.

Entrepreneurship and Employability

The ways in which higher education institutions respond to the social and economic needs of society, including their actions to enhance graduate employability, facilitate wider access especially for disadvantaged groups, contribute to national economic growth and local development and stimulate innovation is leading to more emphasis on entrepreneurship and concerns about future employability. Key areas of interest include how higher education can empower future-ready graduates, the inclusion of entrepreneurship in the curriculum and the

rise of entrepreneurial universities as well as the introduction of new work-based learning models and university-industry collaboration.

Digitalisation of Higher Education

The digitalisation of higher education is being furthered by new capabilities in mobile devices, cloud computing, video streaming and other Internet intensive applications and learning management systems. Today's students are also digital natives and there are several potentials for digitalization to open up higher education to those who would not be able to access or afford it otherwise. In doing so, procedures need to be developed and published for the assessment and recognition of digital learning achieved through different forms of online education, while building on the quality assurance of open education resources and Massive Open Online Courses (MOOCs) to provide continuing and convenient higher education for tomorrow's leaders.

Internationalisation and Cross-Border Higher Education

The internationalisation of higher education and the ongoing movement of people, programmes, providers, curricula, research and services across national borders, or cross-border higher education, has grown significantly across many dimensions and is raising new important issues for policy makers and higher education stakeholders. Areas of interest include current regional and international trends in higher education, the development of intercultural competencies and global citizenship as well as new possibilities for academic mobility and transnational higher education collaboration.

The RIHED SEA-HiEd Inter-Regional Research
Symposium Review Committee Members:

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International Affairs
Chairholder, UNESCO Chair in International
Education for Development
The George Washington University

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Senior Manager, New Product Development and
Research Commercialisation Lead
Center for Creative Leadership (Asia-Pacific)
Singapore

Programme – Thursday 14 November 2019

08:30 - 09:00 **Registration**

09:00 - 09:30 **Welcome Address**

Dr. Chantavit Sujatanond, Centre Director, SEAMEO RIHED

09:30 - 10:15 **Keynote Presentation on Global Issues and Higher Education Research: Regional Context & Relevance**
 Prof. Dato' Dr. Morshidi Sirat, Founding Director, Commonwealth Tertiary Education Facility (CTEF), National Higher Education Research Institute (IPPTN), Universiti Sains Malaysia, Penang, Malaysia.

10:15 - 10:45 **Break**

10:50 - 12:30 **Concurrent Session 1**

Group 1

Group 2

Group 3

Group 4

10:50 - 11:20

Prof. Dr. Ronald Holzhaecker

Prof. Khin Nwe Ni Tun

Asst. Prof. Chrisdell Munsayac

Dr. Nakao Nomura

EU-ASEAN Collaboration in Social Science Research: Linking Southeast Asian and European Universities for Progress on the Sustainable Development Goals

Promoting Competencies of Engineering Graduates: Role of Internship Program

Common Problems and Gender Issues of First Year College Students in Central Luzon State University, Philippines

Application of E-Learning System to Share Education Contents with Overseas Partner Universities for Globalization of Students, Faculties and Supporting Staff

11:25 - 11:55

Mr. Tiansheng Li

Asst. Prof. Dr. Pichayalak Pichayakul

Mrs. Aye Thandar Win

Dr. Hsu Mon Kyi

Internationalisation of Comprehensive Arts Universities in China: Issues and Strategies

Cultivating Entrepreneurship Attributes through Communication for Business Results Class

Gender Concepts in University Entrance System of Myanmar

Outcome-based Education System using Blockchain Technology

12:00 - 12:30

Dr. Sherlyne Almonte-Acosta

Prof. Quang Minh Nguyen

Mrs. Khin Mar Kyu and Mrs. Aye Aye Khine

Dr. Swe Swe Aung

Case Studies of Change Management Strategies in Higher Education: Responses to Increasing ASEAN Integration

Improving the university-industry linkage: a lesson from universities in UK for Vietnamese higher education institutions

Creating a Healthy Development in ELT through a Needs Analysis of Students

Blockchain-based Cross-Border Educational Transaction System

12:30 - 13:45 **Lunch**

13:45 - 14:30 **Keynote Presentation: Towards Impactful Global Research & Partnerships**
 Dr Fiaz Hussain PhD MSc BSc (Hons), SFHEA, Associate Dean (International), Cardiff Metropolitan University

14:35 - 16:15 **Concurrent Session 2**

	Group 1	Group 2	Group 3	Group 4
14:35 - 15:05	<p>Assoc. Prof. Dr. Yazrina Yahya</p> <p>Creating Inclusive Higher Education Systems: The Establishment of Intercultural Competency Application Model Via AIMS</p>	<p>Ms. Jarusri Jiravitkul and Dr. Ara Barsam</p> <p>Empowering Future Graduates for Industry 4.0</p>	<p>Prof. Le Ngoc Hung and Ms. Bui Thi Phuong</p> <p>Equality and Equity in Higher Education in a Restructuring Society: Vietnam's Case Study</p>	<p>Assoc. Prof. Hazel Atilano</p> <p>Crossing Cultural Boundaries: The Odyssey of Lasallian Student Teachers Abroad</p>
15:10 - 15:40	<p>Mr. Traitip Siriruang</p> <p>The Development of ASEAN Awareness of Thai Students as a Result of a Study Abroad Program in ASEAN</p>	<p>Dr. Ha T. Ngo</p> <p>Universities in National Innovation System: the Case of Vietnam and Thailand</p>	<p>Ms. Aye Pa Pa Myo</p> <p>An Investigation into Tertiary Level Educational Reform in Myanmar towards Inclusive and Accessible Quality Higher Education through Analytical Approach</p>	<p>Mr. Hai Vu</p> <p>Internationalization of Higher Education in Industry 4.0</p>
15:45 - 16:15	<p>Ms. Fang Xiaoxiang</p> <p>Teacher Education Regionalization in ASEAN Region: An Analysis based on FOPA Model</p>	<p>Prof. Dr. Philipp Pohlenz</p> <p>Math Matters (!) Student attrition and the role of cognitive and "non-cognitive" learning goals in higher education</p>	<p>Dr. Jannet M. Anit</p> <p>Research and Development in Selected Higher Education Institutions (HEIs) in Calabarzon Region: Issues and Challenges</p>	<p>Asst. Prof. Dr. Romyen Kosaikanont</p> <p>Maximisation of Mobility Programme through Internationalisation at Home: Case Study of Mae Fah Luang University, Thailand 2010-2018</p>

16:15 - 16:45 **Break**

16:45 - 17:15 **Presentation on The Commercialization of Intellectual Property and Maximising the Societal Impact of Research**
 Assoc. Prof. Dr. Duanghathai Pentrakoon, Director, Chulalongkorn University, Intellectual Property Institute

Programme – Friday 15 November 2019

09:00 - 09:45	Keynote Presentation on Opportunities for Joint Research and International Collaboration Dr. Georg Verveyen, Director of DAAD Information Centre Bangkok, German Academic Exchange Service			
09:45 - 10:45	Symposium Poster Session and Break			
10:50 - 12:30	Concurrent Session 3			
	Group 1	Group 2	Group 3	Group 4
<i>10:50 - 11:20</i>	Mr. Soubin Sisavath	Dr Mun Fie Tsoi	Ms. Nu Zar Li and Ms. Sein Lai Kyi	Mr. Benedict Juliano
	Internationalization of Higher Education in Lao PDR: Evidence from Public Universities	Purposeful Empowering through Blended Thinking Intelligence	Enhancing Reading Comprehension Skills by Searching Information and Data on Google and Using Mind Mapping	Perspectives on the Digitalisation of Higher Education
<i>11:25 - 11:55</i>	Dr. Christine Ferrer and Atty. Lily Frieda M. Milla	Prof. Love Cabrera Asis	Dr. Arturo Mariano I. Figueroa	Mr. Darren McDermott
	Internationalisation Processes and Practices among Philippine Higher Education Institutions	Employability of Senior High School Graduates Under TECHVOC Track with National Certification in Graphics and Animation From TESDA.	Trans-boundary Higher Education Institution Research Collaboration with a view to address Environmental Sustainability	Global Asian Leadership for the Advancement of ASEAN Internationalisation
<i>12:00 - 12:30</i>	Assoc. Prof. Dr. Yazrina Yahya	Prof. Sherylove Utida		
	Intercultural Competency: Its Importance in Building the Global Communities in Campus	Relationship Between Self-Efficacy and Stress among Real Estate Management Students		
12:30 - 13:45	Lunch			
13:45 - 14:30	Keynote Presentation on Digitalisation, Employability and Lifelong Learning Dr. Nachamma Sockalingam, Programme Director, Learning Sciences Lab, Singapore University of Technology and Design			
16:30 - 17:00	Presentation on Cross-Border Collaboration in Higher Education: The Promise of Sustainable and Equitable Development Prof. James H. Williams, Professor of International Education and International Affairs and Chairholder, UNESCO Chair in International Education for Development, George Washington University			
15:00 - 15:30	Break			
15:30	Closing			

Symposium Proceedings

Papers



Prof. Khin New Ni Tun

Promoting Competencies of Engineering Graduates: Role of Internship Programme

Promoting Competencies of Engineering Graduates: Role of Internship Program

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Abstract: This study aimed to reveal that the internship program is important in employability of engineering graduates in Myanmar. In Myanmar, an internship program is the best approach to explore career opportunities in the technological industry but most of engineering students do not have opportunities to take internship program. In our neighboring countries such as Singapore, Malaysia, India, Vietnam, etc., information technology and computer studies are very much in demand among businesses; the internship is likely to be very good compensated. But in our country, Myanmar, we have many challenges for the successful implementation of internship program of engineering institutes as well as other kinds of universities. Moreover, the engineering institutes in Myanmar are reformed their curriculum that internship program is a part of the curriculum. So, the final year engineering students cannot pass their final examination without finishing their internship program successfully. In this study, the major challenges of internship program, especially in engineering institutes, are discussed as well as it proposed the feasible solution for the problem of getting rare opportunities to be the interns.

This study also analyzed the employability of engineering graduates of a public university in computer studies and it show that employability is improved for the graduates who have chances of internship program. This study also accessed the performance of interns evaluated by the manager or supervisor of different companies where interns deployed. Qualitative type of research methodology is used to analyze primarily and required data are collected also qualitatively from the University of Computer Studies (Taunggyi), which is one the IT engineering institute in Myanmar. The results proved that the capabilities of IT engineering graduates are drastically improved after attending internship program and the employability of engineering graduates are in progress. This study also showed that the academic performance is moderately related with internship performance.

Keywords: employability, engineering education, competencies, internship

Higher education is the basic need for socio-economic development of a country. It is the main responsibility of higher education institutions to develop the highly qualified human resources needed by the country. Universities graduates need to have the innovative and

creative thinking needed for an economically competitive society. Myanmar higher education institutions (HEIs) need to strengthen their role as a center for creating and disseminating knowledge in the local community. The HEIs need to focus on the development of employability of their graduates by systematic ways.

Employability is the ability to create and sustain work over time (Bennett, 2018). Myanmar HEIs is in weak state for the development of employability of its graduates. There are many complaints from industry site that the HEIs are not preparing their graduates for the workplace. Employability is a set of skills, knowledge and personal attributes that make an individual more employable. Effective Internship program is an efficient way for engaging students to develop their employability skill.

Literature Review

According to the numerous publications in the academic literature, the employability of Myanmar engineering graduates is not studied with detailed discussion. But there are many research studies on the employability of higher education. (Bennett, 2018) highlighted that the preparation for employment and employability of higher education students is very important and it is at the forefront of higher education. Bennett (2018) described that the employability must focus on ability, must form the center of the curriculum, must embrace diversity, and must integrate the metacognitive capacities with which higher education graduates are not only ready for work, but ready to learn. (Sevillia et.al, 2014) assessed the level of performance of the interns in terms of knowledge, skills, attitude and personality. That study also revealed that there is no significant relationship between the academic performance and the training performance of their students. (Chavez, 2014) studied how to develop the students' competencies and academic performance of engineering students through Academe- Industry Partnership. That study found that Engineering interns have very high competencies in terms of attitude with high performance in personality of their cohort of students. (Miralles-Quirós & Jerez-Barroso, 2018) examined the role of internship for adaptability of higher education to the demand of labor market through the existing evidence published in highly qualified scientific journals. They said that there is a great interest of research in the field of economics and education but poorly addressed, establishing an important field for further research.

Developing Internship Program

There have been significant changes and improvements in the field of higher education in Myanmar. There are thirty two universities and colleges in 1988 but the number of HEIs is growth up to 171 in 2017 (Haydena & Martin, 2013). The country's universities and colleges are widely dispersed across the regions of the country. Fifteen states and divisions are divided around the country and at least three public universities or colleges are established in each region. Around the country, 28 universities specialized for computer science and technology and 33 technological universities, altogether sixty-one universities of engineering are implemented and accounted for 18% of all higher education enrolments (Kraas. et al, 2017). All engineering universities have dedicated and strictly regulated curriculum. All of engineering universities tried to reform their curriculum, teaching methodology, assessment plan to improve the quality of education and employability of the university. Starting from 2016-2017 academic year, there is a new rule that each and every final year of engineering students must involve in the internship program. In final year subjects, internship is considered as one subject. If the student doesn't join to the internship program, she/he could not pass the final year exam.

Challenges of internship program development in Myanmar

The engineering universities are encountered with many challenges to develop successful internship program. The following are some of these challenges to implement internship program.

(i) Financial status of universities

All of HEIs in Myanmar are public and government funded university. Each education institution requested to the Ministry of Education for their expenses. The Ministry of Education asked for the budget from government for expenses of all education institutions. The universities are dispersed around the country, so the cost of operating is fairly high and the obtainability of sufficient resources is limited (Kraas. et al, 2017). All of the universities are underfunded. So, the university cannot support to the interns financially.

(ii) Slow economic development of industries

The declination of economic in country can reduce the obtainability of employment and supporting for internship. Many employers want to recruit only the experienced employee and they don't want to use time and money for novice employee and intern students. Even though they would like to help to improve the quality of engineering graduates and interested to collaborate with universities, they cannot afford to support

financially. Most of the students from universities in rural area cannot afford to go the far cities away from their hometown for internship program if they don't have financial support.

(iii) University-Industry collaboration is weak

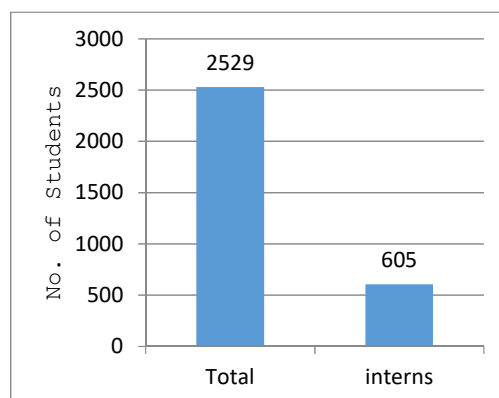


Figure 1. The rate of interns for IT engineering graduates

During military regime, the management of HEIs is strictly centralized and restricted to engage with industries. As a consequence, the knowledge of graduates doesn't meet the industry need. The job opportunities for the graduates are very rare and need to join extra training organized by industries and private institutions for readiness to join labor market. The linkage of universities – industries are not good. Most of them have no effective join up policy for collaboration with industries. The industries complained that the graduates are not enough knowledge and skill to meet their need. The numbers of students who want to be intern are very high and on the other hand, the number of interns accepted by industries is so little. In 2016, only 32 % of final year students in engineering universities can join to internship program and the others 68% are doing project in their universities under supervision of faculties. The weakness of doing project at their home university is the graduates don't have working experience and don't in touch with working environment and lack of exploring for career path. Figure 1 shows that the rate of interns for IT engineering graduates around the country in 2016-2017 academic year. There are 2529 IT engineering graduates in 28 Universities of computer studies, and only 605 of graduates can join to the internship program.

In order to solve above challenges and maximize the number of interns, this study proposed the reasonable internship model.

Proposed internship model

Because of the intern acceptance rate by the industries are very low, most of engineering students cannot have an opportunity to gain valuable work experience, to explore

career path and other benefit of internship program. There are two parts in this internship model such as in-campus internship program and out-campus internship program.

Out-campus internship program is intended for the minority of students who can financially afford to go to industrial site in urban area. It will take about four months or six months requested by industry. In out-campus internship program, the university needs to strengthen the relationship with industries. For this program, the university request to the industries for recruiting interns or the industries request to university for recruitment. The interns need to record their daily activities on their log books. The industries evaluate to the interns and send their evaluation to the university after internship period. The industries need to facilitate the working space and required equipment for the interns and some industries financially supported to the interns. Only a few of interns could join to out-campus internship program.

In-campus program is intended for majority of IT engineering graduates. In the in-campus internship program, the interns have to do project under guidance of performing industrial professionals. According to survey, there are many industrial professionals who want to support to the universities for generating industries readiness graduates. In this program, the industrial professionals and university faculties are cooperating to implement internship program. The industrial professionals could only join once a week and share industrial knowledge to the interns. In the other days, the university faculty needs to supervise to the interns. The university can request to Myanmar Engineer Council for engineering professionals or Myanmar Computer Federation for computer engineers to assist to in-campus internship program. The university needs to facilitate a space for interns, and other equipment and necessary kit to the interns for doing project. The program will take three or four months. After completion of project, the industrial professional and university faculty can evaluate together their project. Table 1 describe that how internship programs are management. This model can solve the problems that encountered with developing internship program in engineering universities.

Table 1. *Types of internship program and its management*

Internship Program	Working Places	Supervised By	Evaluated by	Facilitated By
Out-campus	Industrial	Manager or Supervisor of industries	Industries	Industries
In-campus	University	University Faculties and industrial professionals	Industry and university	Universities

Evaluation of Graduates' Competencies

The following section studied to determine whether the graduates' competencies are developed during internship program. Majority of graduates studied in computer studies and technology are females indicated by the average ratio of 71 % against 29 % of males. Figure 2 shows that the distribution of male and female ratio of computer studies students in UCS(Taunggyi).

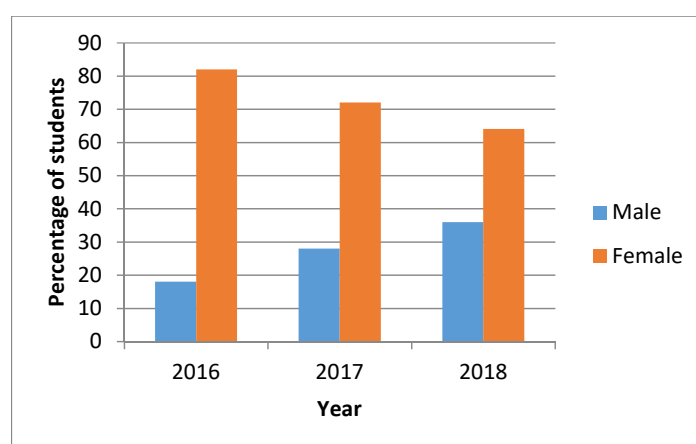


Figure 2: Illustration of computer studies students by gender

This study used the performance of interns evaluated by the manager or supervisor of different companies where interns deployed as instruments. The interns' performance is categorized into two types of skills such as soft skill and hard skill, include sixteen competencies in total. Table 2 describes the hard skill and soft skill that we emphasized for IT engineering graduates in Myanmar. There are many kinds of soft and hard skills studied in the literature. In this study, we collect the type of skills needed in Myanmar industries according to the nature of student in Myanmar. Especially, most of these skills are needed to realize for IT graduates of Myanmar.

Table 2. *Graduates competencies categorized in hard skill and soft skill*

Soft Skills	Hard Skills
1. Arrived work on time	1. Effectively performed assignment
2. Behaved in professional manner	2. Oral communication skill
3. Ability to work with other	3. Written communication skill
4. Reliability and dependability	4. Computer skill
5. Attention to accuracy and details	5. Quality of work
6. Interested and enthusiastic in the internship experience	6. Demonstrated critical thinking and problem solving skill
7. Willingness to ask for help and guidance	7. Making and meeting deadline
8. Ability to adapt to a variety tasks	8. Decision making and setting priorities

The internship period is four months from May to August. The participants of the study are the 45 interns studied for the Bachelor of computer science and technology program at University of Computer Studies (Taunggyi). They are evaluated by the managers or supervisor of the industry where they are working for internship program. The University of Computer Studies (Taunggyi) is located in Shan State, northeast of the country, Myanmar. Most of Shan State region are mountainous landscapes, height over 3000 feet above sea level. It covers 155,800 km², almost a quarter of the total area of Myanmar. 11.31% of Myanmar population is lived in Shan state and the population density (people per km²) is 37 (Kraas et al , 2017). Most industries that link with University of Computer Studies (Taunggyi) are in Yangon, 453 km far away from Taunggyi.

Research Method and Data Description

This study used a standard competencies assessment tool provided by the university to assess the competencies of the interns. The competencies score is divided into five scoring grades 1.00 -1.49 is the lowest and rated as poor (P), 1.5-2.49 is fair (F), 2.5-3.49 is good (G), 3.5-4.49 is very good (VG) and the highest is 4.5-5.00 rated as excellent (E). The interns are enrolled in the Bachelor program of computer science and technology. They have to study four and half year in university and study for 4 months in industry. The interns went to the IT industries such as software development companies, IT solution services, banking services, telecommunicating services, network operation center and data center.

Table 3. *Performance of interns in terms of soft skill*

No	Soft Skills	Mean	Score	Rank
1	Arrived to work on-time	3.9	Very Good	1
2	Behaved in professional manner	3.3	Good	6.5
3	Ability to work with others	3.5	Very Good	4.5
4	Ability to adapt to a variety of tasks	3.5	Very Good	4.5
5	reliability and dependability	3.3	Good	6.5
6	attention to accuracy and details	3.2	Good	8
7	Willingness to ask for help and guidance	3.6	Very Good	3
8	Interested and in an enthusiastic about the internship experience	3.8	Very Good	2

Analysis of Interns Competencies

In terms of soft skill, the data show that interns' competencies are very good with the combined mean of 3.51. The interns are very interested in internship program and eager to learn from the industries. Most of these students are come to class late during learning in university, but they tried to be on time during internship program. The ability of work with others and the ability to adapt to a variety tasks are also very good with mean value 3.5. They are less attention to accuracy and details of working assignment. The interns' reliability and dependability for their assignments are also high.

Table 4. *Performance of interns in terms of hard skill*

No	Hard Skills	Mean	Score	Rank
1	Effectively performed assignments	3.4	Good	1.5
2	Oral Communication skills	3.2	Good	5.5
3	Written communication skills	3.1	Good	7.5
4	Computer skills	3.4	Good	1.5
5	Quality of work	3.3	Good	3.5
6	Demonstrated critical thinking and problem solving skills	3.2	Good	5.5
7	Making and meeting deadline	3.3	Good	3.5
8	Decision making, setting priorities	3.0	Good	7.5

In terms of hard skill, the interns' competencies are good but the score are not so high. The score of written communication skill and oral communication skill are less than other skills. The university needs to train more to the students for communication skills. The interns are weak in decision making and setting tasks priorities. This study also shows that the graduates from University of Computer Studies (Taunggyi) have more emotional quotient than intelligent quotient by showing average score of soft skill is more than average score of hard skill. The academic performance is partially related with internship performance. Most of the students who have good grade in academic can show good performance in internship program. They also got job offer by industries after internship program. The following section describes the employment of interns after internship program.

Analysis of Employment of IT engineering graduates

The education system in Myanmar is in weakest state because of the effect of 60 years of dictatorship. The higher education system is not bringing in line with the needs of industries. The rate of unemployment is high and the industries informed that the graduates are lacking adequate soft-skills and also not qualified in hard skill.

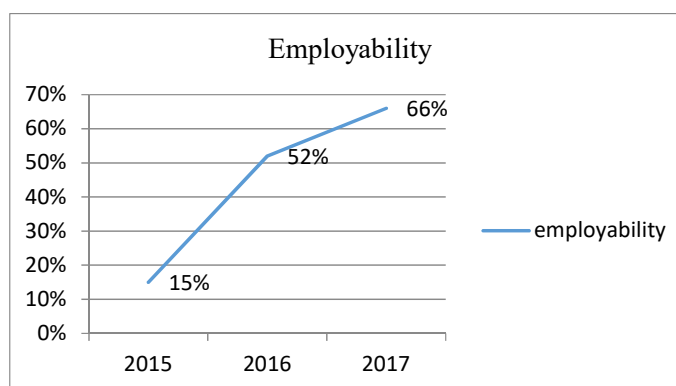


Figure 3. Employment of interns after internship program

After transformation from military dictatorship to civil society, the government of Myanmar intended to reform the entire education sector with a new National Education Strategic Plan (NESP) 2016-2021. HEIs also reform aligned with NESP. Figure 3 shows that the level of employability is sharply high after the universities is implemented the internship program. Only 15 % of IT engineering graduates from UCS (Taunggyi) is employed in 2015. The internship program is started in 2016 in university and the employability is higher in each and every year. UCS (Taunggyi) tried hard to collaborate with industries to successfully implement internship program. But as mentioned above, there

are many challenges to develop internship program for IT engineering graduates around Myanmar. Only 32 % of IT graduate can join internship program in 2016.

Conclusions

Producing highly skilled and career readiness graduates for the modern workforce is the essential task of the HEIs. This study highlighted that the importance of internship program for employability of graduates of HEIs. It also found that the student competencies are improved after successfully develop the internship program. But only a few students can only go for internship program because of lack of internship opportunities provided by the industries. The graduates who went to the internship program have more confident to join the industries and are more readiness to go for joining industries. In this paper, we also proposed the practical internship model for ICT engineering graduates in the country. The proposed in-campus internship program is now using in some universities for computer studies and found that the graduates' competencies is improved. Out-campus internship program is more efficient and effective for employability expansion. But at current situation, Myanmar engineering universities have rare opportunities to implement out-campus internship program and still need to use in-campus internship program.

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Papers



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Common Problems and Gender Issues of First Year College Students in Central Luzon State University, Philippines

Common Problems and Gender Issues of First Year College Students in Central Luzon State University, Philippines

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ABSTRACT: *College education gives a chance to students to learn new things, meet new people, and deal effectively with new experiences and challenges which eventually help them in their personal growth and development. Adjustment to college life immediately after high school becomes a difficult transition for many students. It is in this context that this study determined the common problems and gender issues of 200 first year college students in six out of eight colleges of Central Luzon State University in the Philippines. Researcher-made Problem Checklist with 70-items was used to measure common problems. While, pre-testing was done to formulate Gender Issues Scale with 69 items to measure gender issues of the respondents.*

Based on the findings of the study, the common problems of the respondents are with Career or Life Goals and Personal. Respondents wonder about their future (60%), they are not as honest as they should be (54.50%), and they cannot forget some mistakes they have made (50%). While, the agreement on gender issues of the respondents are 26 out of 69 items with strongly agree to agree on Gender Role Confusions (2.85), Gender Stereotypes (2.64) and Gender Biases (2.59). Respondents strongly agree that males should be gentle to females (e.g offering them a seat in a fully-loaded bus) (3.34), they agree that females are expected to be conservative in dressing-up (2.84), and during Physical Education class, being a male is an advantage in changing clothes because they are less conservative than females (2.70).

Further, there is no significant relationship of sex, college, course, and religion to gender issues and common problems except for religion. The respondents' religion plays an important role to their common problems. While, male and female respondents have no significant difference to their gender issues.

Keywords: first year college students, common problems, gender issues, gender role confusions, gender stereotypes, gender biases

Higher Education Institutions (HEIs) in the Philippines grow because of the increase in the number of student enrollment in colleges and universities and this transition from high school to college is a complex process for almost all students. Pascarella and Terenzini (1991) describe this transition as a "culture shock involving significant social and psychological relearning in the face of encounters with new ideas, new teachers and friends with quite varied values and beliefs, new freedoms and opportunities, and new academic, personal and social demands." In order for HEIs to better accommodate the significant number of students, it is crucial to identify and understand the many factors that affect the satisfaction and retention of these students.

Further, the Philippines have the same access with men and women to education, according to the 2011 Global Gender Gap rankings, the Philippines remain in the top 10 countries with the least gender gap. But according to the Online Paper of Friedrich-Ebert-Stiftung Philippine Office on September 2000, the gender situation in the Philippines is characterized by sharp contradictions. It graphically showcases samples of women's advancement in politics, academic and professional excellence, even in legislation. But this contrasted by images of prostituted women, battered wives, economically disadvantaged women and exploited migrant workers. Academic institutions like State Universities and Colleges (SUCs) play a vital role in

addressing gender disparity in the country. The Gender and Development (GAD) approach focuses on the socially constructed differences between men and women, the need to challenge existing gender roles and relations, and the creation and effects of class differences on development.

Philippine Plan for Gender and Development, 1995-2025, is a National Plan that addresses, provides and pursues full equality and development for men and women. Approved and adopted by former President Fidel V. Ramos as Executive No. 273, on September 8, 1995, it is the successor of the Philippine Development Plan for Women, 1989-1992 adopted by Executive No. 348 of February 17, 1989. A Memorandum Circular No. 2011 – 01 dated October 21, 2011 was released addressing to all Government Departments including their attached agencies, offices, bureaus, State Universities and Colleges (SUCs), Government-Owned and Controlled Corporations (GOCCs) and all other government instrumentalities as their guidelines and procedures for the establishment, strengthening and institutionalization of the GAD. There was an implementation of the GAD Budget Policy in 1995, requiring all departments to allot at least 5% of their total budget for GAD-related activities. Local government units and state colleges and universities were later on included.

This is the reason why the study was carried out in Central Luzon State University (CLSU) located in Science City of Munoz, province of Nueva Ecija in the Philippines because there is the University Gender and Development Office (UGADO) which caters both employees and students. Through the years, CLSU is lauded by the Professional Regulation Commission as a “Top Performing School” for the outstanding performance of its graduates in licensure examinations. It has produced top rank passers in licensure/ board examinations for teachers, accountants, agriculturists, fisheries technologists, engineers, veterinarians, and agricultural engineers. The Commission on Higher Education (CHED) Annual Report 2008, CLSU is the Center of Excellence and Best Regional HEI Research Program.

This study tried to give us picture on the gender awareness and sensitivity in terms of the agreement on gender issues such as role confusions, gender stereotypes and gender biases of first year college students in a reputable university in the Philippines like the CLSU. Is the Philippines particularly CLSU has least gender gap as per findings from the 2011 Global Gender Gap rankings? It is also in this context that this study tried to determine the common problems experienced by the respondents. By focusing on this, the study is believed to have its contribution by suggesting possible remedial strategies through programs and activities to be conducted by the CLSU’s UGADO, Office of Student Affairs and Guidance Services Unit. Specifically, this study attempted to answer the following basic research questions.

1. What are the differences in the socio-demographic characteristics in terms of sex, college, course and religion associated to the common problems and gender issues of the respondents?
2. Do male and female respondents show significant difference in their gender issues?
3. What are the implications and possible measures that could be taken to assist the respondents with their gender issues and problems?

METHODOLOGY

Research Design and Sampling

Survey method was applied to find out the common problems and gender issues such as gender role confusions, gender stereotypes and gender biases of the first year college students in CLSU. The respondents were randomly selected in colleges with first year college students such as College of Arts and Sciences (CAS), College of Education (CEd), College of Fisheries (CF), College of Agriculture (CAg), College of Business Administration and Accountancy (CBAA) and College of Home Science and Industry (CHSI) while College of Engineering (CEn) and College of Veterinary Science and Medicine (CVSM) were not included because they did not have first year college students. Distribution of questionnaires was done by part time student employees who were hired as student enumerators.

Participants

The participants were 30% (200) first year college students of the total population (900) who were enrolled in the second semester of Academic Year 2015-2016 under six different colleges in the university.

Instruments

A pre-testing was made to formulate the Gender Issues Scale for item reliability and validity purposes. It composed of open-ended question pertaining to gender issues experienced by the sample participants. Finally, the scale composed of 69 items divided in three categories, Gender Roles, Gender Stereotypes and Gender Biases which was answerable from strongly disagree to strongly agree. The Problem Checklist is a teacher-made checklist revised by the researcher-counselor used by the Guidance Services Unit of OSA- CLSU to measure common problems of the respondents. It is composed of 70 items divided in six categories such as Personal, Home or Family, Career or Life Goals, Study or School, Relationship or Intimacy or Sexuality, Morality or Religion or Spiritual and others. Each category has 10 items answerable by checking the items if the respondents is currently experiencing the specified problems.

Data Analysis

Data were analyzed using Statistical Package for Social Science. Descriptive statistics was used to identify participants' socio-demographic characteristics, common problems, and gender issues such as gender role confusions, gender stereotypes and gender biases. Pearson Chi-Square correlation test was used to identify the relationship between the given variables. Lastly, the T-test was used for determining whether the variables have significant differences or not.

Theoretical Framework

Gender schema theory was formally introduced by Sandra Bem in 1981 as a cognitive theory to explain how individuals become gendered in society, and how sex-linked characteristics are maintained and transmitted to other members of a culture. Gender-associated information is predominantly transmuted through society by way of schemata, or networks of information that allow for some information to be more easily assimilated than others. Bem argues that there are individual differences in the degree to which people hold these

gender schemata. These differences are manifested via the degree to which individuals are sex-typed.

Core gender identity is tied up in the sex typing that an individual undergoes. This typing can be heavily influenced by child rearing, media, school, and other forms of cultural transmission.

Being that gender schema theory is a theory of process and not content, this theory can help explain some of the processes by which gender stereotypes become so psychologically ingrained in our society. Specifically, having strong gender schemata provides a filter through which we process incoming stimuli in the environment. This leads to an easier ability to assimilate information that is stereotype congruent, hence further solidifying the existence of gender stereotypes. Within adolescent development, Bem hypothesizes that children must choose among a plethora of dimensions, but that gender schemas lead to the regulation of behaviors that conform to the cultural definition of what it means to be male or female.

Conceptual Framework

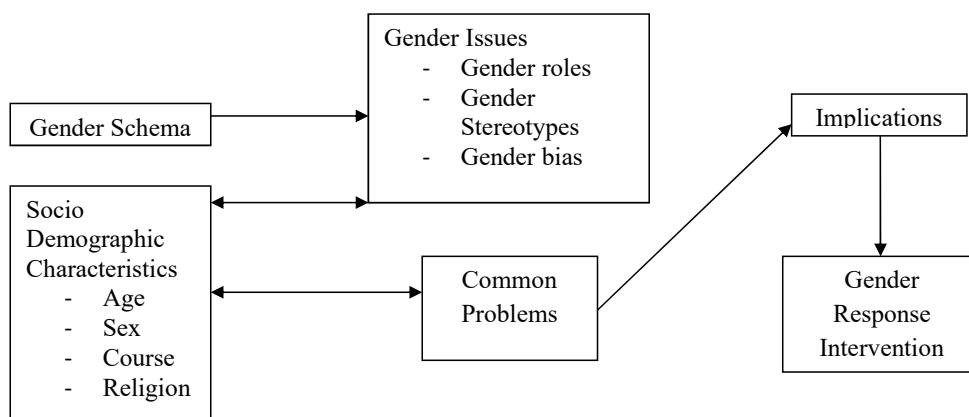


Figure 1. Gender Schema Theory of Sandra Bem (1981)

The figure showed the conceptual framework of the study according to the theory of Sandra Bem (1981).

The conceptual framework showed the relationship of the independent and the dependent variables. The independent variable of this study is the socio demographic characteristics while the dependent variable is the gender schema. The gender schema of the respondent is a set of organized belief of gender-related information that can be formed even at a young age. The researcher believed that gender schema could also result in the development of gender issues and influence the socio-demographic characteristics of the respondents such as age, sex, course and religion, which is also anchored on the Gender Schema Theory of Sandra Bem. Moreover, the researchers aim to determine the common problem that is stemmed in socio-demographic characteristics. The study also aims to determine the relationship of socio-demographic characteristics of the respondent on both common problem and gender issues. The implications will also determine the use of gender responsive intervention that could address the possible solution to the common problems and gender issues of the respondent.

RESULTS

Table 1. Respondents' Common Problems on personal, home/family, career/life goals, study/school problems and morality/religion/spiritual

Rank	Common Problems	Count	%
I. PERSONAL*			
3	I.9. I cannot forget some mistakes that I have made.	100	50.00
2	I.10. Sometimes, I am not as honest as I should be.	109	54.50
II. HOME/ FAMILY			
11	II.2. There are many arguments in my family.	58	29.00
12	II.4. I do not get along with my parents.	52	26.00
III. CAREER/ LIFE GOALS*			
1	III.2. I sometimes wonder about my future.	120	60.00
6	III.5. I wonder what kind of family I shall have for my own in the future.	80	40.00
IV. STUDY/ SCHOOLS PROBLEMS			
8	IV.4. I am not good at certain subjects.	74	37.00
5	IV.5. I have been unable to determine how much time I should study.	81	40.50
V. RELATIONSHIP/ INTIMACY/ SEXUALITY			
4	V.1. I wonder if I could be a responsible life-partner.	82	41.00
9	V.2. I become easily embarrassed.	71	35.50
VI. MORALITY/ RELIGION/ SPIRITUAL			
7	VI.9. I feel very guilty every time I make mistake.	79	39.50
10	VI.10. Sometimes, I do not know what is right or wrong.	70	35.00

N= 200

The results showed that there are two out of six problem clusters scored 50-60% of respondents which were on Career or Life Goals and Personal. The respondents wonder about their future (60%); They are not honest as they should be (54.50%); and They cannot forget some mistakes they have made (50%). According to Laurie & Hellsten 2002, time management is extremely important, especially when it comes to university students because most of the students face problems like task aversion and uncertainty, so they get distracted easily.

Table 2. Averages of student’s agreement in gender issues specifically on GENDER ROLE CONFUSIONS

GENDER ROLES	Averages	Description
1. Males should be gentlemen to females (e.g offering them a seat in a fully-loaded bus).	3.34	Strongly Agree
2. Males are expected to have a <i>ladies first</i> thinking.	2.87	Agree
3. Heavy works are for males while light tasks are for females.	2.84	Agree
4. LGBT can also do what a male and female can.	2.82	Agree
5. Difficult tasks should always be assigned to males.	2.69	Agree
6. Doing household chores, taking care of babies and staying at home are not the tasks of males.	2.51	Agree
TOTAL	2.85	AGREE

Legend: 1-1.75-Strongly Disagree, 1.76-2.50-Disagree, 2.51-3.25- Agree, 3.26-4.00-Strongly Agree

The results showed the student’s agreement in gender issues specifically on gender roles. Majority of the respondents “strongly agree” that “males should be gentlemen to females (3.34). The rest of the respondents “agree” to the statement that shows issues on gender roles.

This indicates that student has their gender roles issue and most of the student thinks that males should be gentlemen to female. The fact that male should treat female with a good conduct and respect them even the male suffers a little. According to Samly (2017) most women still consider those men who are gentlemen and it win a woman’s heart.

Table 3. Averages of student’s agreement in gender issues specifically on GENDER STEREOTYPES

GENDER STEREOTYPES	Averages	Description
1. Females are expected to be conservative in dressing-up.	2.84	Agree
2. Parents are stricter to their daughter compared to their son.	2.79	Agree
3. Females are too often emotional.	2.78	Agree
4. Females are conscious of their physical appearance.	2.74	Agree
5. It is hard for a gay to win the acceptance of their family.	2.69	Agree
6. Females should always behave in a	2.68	Agree

feminine way.		
7. Uniforms for males are usually pants and polo shirts.	2.65	Agree
8. Males are expected to be quick and active in doing chores.	2.64	Agree
9. Social influence affects the development of an individual's gender.	2.61	Agree
10. Males are not expected to bring cosmetics in their bag.	2.57	Agree
11. Holding hands for males are not common and often called brother romance or <i>bromance</i> .	2.56	Agree
12. Males are expected to have girlfriends.	2.56	Agree
13. Males should be tough.	2.54	Agree
14. Religion influences gender development.	2.53	Agree
15. Females should be quiet and demure.	2.52	Agree
16. The uniforms for females are usually paired with skirt.	2.52	Agree
Total	2.64	AGREE

Legend: 1-1.75-Strongly Disagree, 1.76-2.50-Disagree, 2.51-3.25- Agree, 3.26-4.00-Strongly Agree

The results showed that students generally agree in all of the presented gender stereotypes regardless of the differences in socio demographic characteristics. Results also suggest that issues on gender stereotypes still exist in this generation. Based on the comparative study of Haines et.al (2016), it is because gender stereotypes are apparently so deeply embedded in our society. Additionally, significant increase on the stereotypes in gender roles of women is also presented on the said study. It strongly supports the result of the data above which shows that students “agreed” most that “Females are expected to be conservative in dressing-up”.

Table 4. Averages of student's agreement in gender issues specifically on GENDER BIAS

GENDER BIAS	Average	Description
1. During PE class being a male is an advantage in changing clothes	2.70	Agree
2. When a female is talking with someone over the phone people think that it's her	2.58	Agree

boyfriend.		
3. Females are expected to have lengthy hair.	2.55	Agree
4. There should be an implementation of course uniforms in the University to control cross-dressing.	2.54	Agree
Total	2.59	AGREE

Legend: 1-1.75-Strongly Disagree, 1.76-2.50-Disagree, 2.51-3.25- Agree, 3.26-4.00-Strongly Agree

The results showed that majority of the respondents “agree” on the statement that shows gender issue specifically on gender bias. It indicates that even in the education setting gender still exist. According to Chapman (n.d), this problem have a very few or no people to fight for their rights and remain silent. She also added that most of the educators unconsciously perform their own biases in classes.

Table 5. Relationship between respondents’ Socio- Demographic Characteristics to Gender Issues and Problems

SDCs	Gender Issues	Common Problems
Sex	0.495	0.097
College	0.704	0.064
Course	0.836	0.019
Religion	0.711	0.008

Significant at 0.01

The results showed that there is no significant relationship of sex, college, course, and religion to gender issues and problems except for religion. The results showed that there is a significant relationship of religion to problems which means religion may enhance the ability to cope with problems. According to Connor KM, Davidson JR, Lee LC 2003, for some individuals, religious faith may enhance the ability to cope with negative life events, whereas for others, negative life events may result in greater religious faith.

Table 6. Difference between respondents’ Sex and Gender Issues

	Sig (2-tailed)
Gender Issues	0.636

Significant at 0.01

The result showed that male and female respondents have no significant difference in their gender issues. According to Hyde 2005, across the dozens of studies, consistent with the gender similarities hypothesis, gender differences had either no or a very small effect on most of the psychological variables examined.

DISCUSSION

The top common problems of the respondents revealed in the career or life goals, “I wonder about their future”, “Sometimes, I am not as honest as I should be”, and “I cannot forget some mistakes that I have made”. According to Brennan, (2014), until their early 20’s, students continue to develop their abilities in planning or thinking about their future and wondering about their future is normal and this will help them think about careers they want. When a child enters adolescence, they begin to make more room to grow. Teenagers seem more prone to lie both by commission (telling a deliberate falsehood) and by omission (not voluntarily disclosing all that parents need to know), (Pickhardt, 2009). Usually for freedom's sake, lying occurs. It is to escape punishment for misbehavior. Lying seems to be the easy way to get out of trouble or to do some adventure that has been disallowed.

It was also revealed that respondents experienced arguments in the family. Students who attend and remain at a college or university who have experienced family problems or parental divorce might deal with a wide range of issues throughout their college careers, such as the inability to manage conflict between roommates; challenging relationships with partners and friends; and problems in the classroom (Little, 2006). While with their study or schooling, it was found out that respondents have been unable to determine how much time they should spend in their study. Most students showed that their greatest challenge in adjusting to college life and to succeeding in the classroom is in managing their time effectively. Students deal with the additional issues of family and home responsibilities (Keeley, 2011). Further, with the relationship, intimacy or sexuality, respondents wonder if they could be a responsible life-partner. Today’s young generation and teenagers think that being in a romantic relationship is the modern way of lifestyle. They start going on a date so that they can choose a good life partner when they are capable of in the future gaining experience of good and bad relation (Rimal, 2015).

Gender role, as defined by Basow (1980), refers to society's evaluation of behavior as masculine or feminine, e.g., cooking is feminine, while fishing is a masculine role in most societies. Respondents’ degree of agreement from strongly agree to agree such as “Males should be gentlemen to females (e.g offering them a seat in a fully-loaded bus)”, “Males are expected to have a *ladies first* thinking”, and “Heavy works are for males while light tasks are for females”, etc were some of the gender role confusions. According to Gender Sensitivity Module 5 of Guez & Allen (2000), masculine roles are usually associated with strength, aggression, and dominance, while feminine roles are associated with passivity, nurturing, and subordination. Moreover, according to Gender and Sociology (2015), gender roles are only based on norms or standards created by society. Respondents’ gender roles are influenced by the society for the sake of conformity. Additionally, based from the study of Moely and Kreicker (2016), males are perceived to be “gentlemen” towards female so that’s why men respect and protect women, it is also because of the fact that chores and other things are easier to men.

While, according to the Pocket Oxford Dictionary, a stereotype is a ‘person or thing seeming to conform to a heavily accepted type’. Sex-role stereotypes have also been defined as ‘the rigidly held and oversimplified beliefs that males and females possess distinct (and similar) psychological traits and characteristics’. These beliefs tend to be very widely held in society

(Basow, 1980). In some societies, for example, the following stereotypes are thought to pertain either to males or females only. Respondents' degree of agreement as agree such as "Females are expected to be conservative in dressing-up", "Parents are stricter to their daughter compared to their son", "Females are too often emotional", etc were some of the gender stereotypes. Some study speculated that conservative characteristics are expected from females and that they are usually accused of being emotional than males according to Cronn (2012) but in addition to this, Schmitt (2015) argued that, men could be described as more emotional than women, it depends on the type of emotion, how it is measured, where it is expressed, and lots of other factors. The school transmits a lot of stereotypes about females and males. In some countries, for example, certain subjects are taught only to boys or girls, e.g., boys are taught technical drawing, wood and metal work, etc., while girls are taught domestic science or home economics, secretarial skills, etc. Schools also offer different games to girls and boys, e.g., girls play netball, while boys play soccer. Most games played by boys tend to be more competitive than those for girls.

Respondents' degree of agreement as agree such as "During Physical Education class being a male is an advantage in changing clothes", "When a female is talking with someone over the phone people think that it's her boyfriend", and "Females are expected to have lengthy hair", etc. were some of the gender biases.

Further, the Global Gender Gap Index 2016, the Philippines remains the most "gender-equal" country in the Asia-Pacific region as it was found to have effectively bridged the gap between men and women in the economy, politics and the society. Globally, the Philippines maintained its position that year, ranking 7th among 144 economies assessed by the World Economic Forum (WEF) in terms of four main indicators, namely health and survival; educational attainment; economic participation, and political empowerment. Based on the country's score card, the Philippines recovered under the educational attainment indicator where it rose significantly to the 1st place from ranking only 34th in last year's index (Inquirer.net 2016). From this study's result, respondents are not yet gender sensitized because of their agreement and experiences of gender issues such as role confusions, stereotypes and biases.

It was also implied that socio-demographic characteristics of respondents such as sex, college, course and religion were not significantly related to their gender issues. According to Little (2016), gender refers only to the state of being male or female including even the psychological, cultural, and social dimensions so the association between some gender issues and the sex were clearly absent in the present study.

However, the respondents' religion plays an important role to their common problems. This finding was agreed by the study of Tartakovsky (2016) which according to him, a person who is committed to their religion or beliefs must really be afraid to commit mistakes, especially on a student who will actually meet different kinds of people that might influence them. People may avoid social situations (meetings, dating, presentations), for fear of making some sort of blunder, and they may procrastinate for fear of not being able to complete a task perfectly.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the study, the researchers therefore conclude the following: (1) Most of the respondents worry about their future and bothered by personal thoughts and mistakes. (2) Despite gender awareness and modernity, respondents still have gender issues such as gender role confusions, gender stereotypes and gender biases. (3) Traditional thinking as to limiting the roles of males, females and LGBT still exists as expressed by the respondents of the study. (4) Sex, course, college and religion do not account on gender issues and problems of the respondents. However, religion plays an important role on problems of the respondents.

Having the major findings of the study, the following recommendations and suggestions are forwarded. Recommendations are focused on minimizing student stresses, self-awareness, gender identity and enhancing comfortable climate for learning. The university offices particularly the following should provide the necessary actions. (1) Office of Student Affairs-Guidance Services Unit should be more proactive in providing student activities on self-awareness and career education; (2) University Administration should provide gender neutral toilets, conducive classrooms, student activity center, student cafe and study nook with free internet access. They should also adapt the changing world like on uniforms, students can choose if they may want to wear blouse or polo, and skirt or pants; (3) University Gender and Development Office's programs should be more intensified focusing on activities for students that will enhance broader understanding of the diverse roles of the different genders. They should also encourage positive staff-student interaction facilitates to further support our students while studying in the university.

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Papers

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**Internationalisation of Comprehensive Arts Universities in
China: Issues and Strategies**

Internationalization of Comprehensive Arts Universities in China: Issues and Strategies

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Abstract: *The Comprehensive arts universities (CAUs) are the main force, main standard and main representative of the internationalization of higher art education of China. In the past 40 years of reform and opening-up, especially since the new millennium, the internationalization of China's CAUs has made great progress, which has made them more and more well-known by the world with good reputation. But there are still some existing issues with them: insufficient understanding on higher education internationalization, weak implementation of internationalization plans, inadequate adopting of the international advanced experience, imbalance inter-school development, etc. In order to improve the internationalization level of the CAUs in China, the following strategies can be taken into steps: 1) Combining the international advance experiences and China's national education opening-up policies with the "Double First-Class" Plan to make top-notch internationalization plans for the universities. 2) Integrally developing the internationalization of teaching staff, personnel training, curriculum system, scientific research, and school supporting system to narrow the gap of the internationalization level between CAUs in China and abroad. 3) Building up international regional organizations to enhance the exchanges and cooperation on arts among regional universities. 4) Promoting the arts and cultural exchanges between CAUs and international art institutions to promote people-to-people communication, to lay a solid "humanistic foundation" for the bilateral cooperation between China and different countries and regions.*

Keywords: Internationalization, Comprehensive Arts Universities, Strategies

I. I Interpreting the Internationalization of Higher Art Education

1.1 Interpreting Internationalization of Higher Education

The past three decades witnessed the incessant discussion on the concept and connotation of Internationalization of Higher Education on which the academic circles have not yet arrived at consensus. The most widely accepted definition now is the one put forth by Knight (2003), *"Internationalization is the process of integrating an international, intercultural or global dimension into the purpose, functions or delivery of post-secondary education"* (p.2).

The International Association of Universities (IAU) adopts the following definition: *"Internationalization of Higher Education is the intentional process of integrating an international, intercultural or global dimension into the purpose, functions and delivery of*

post-secondary education, in order to enhance the quality of education and research for all students and staff, and to make a meaningful contribution to society.”The definitions refined by Jane Knight and IAU emphasize the fact that internationalization is a deliberate process, but not a passive experience; Internationalization needs to meet the needs of social development, but not focusing only on economic theory and economic returns; Internationalization is not a goal in itself, but a means of improving the quality and excellence of higher education.

1.2 Interpreting the Internationalization of Higher Art Education

The internationalization of higher art education is an important and active part of the internationalization of higher education. It is the concentrated responses of higher art education to the accelerating globalization. And it is the concentrated expression of sharing high-quality art education resources, improving the quality of education, promoting education equity on the base of common international education rules, and is also the development strategy of meeting the needs of social development for a better artistic life. Although globalization affects all higher art education institutions, they are affected by the culture environment and the social condition of the countries that they are in. As a result, they have different understanding and diversified needs to the internationalization of higher education. Therefore, there is no “one size fits all” internationalization model or method. Instead, every higher art education institution can benefit from the best thinking and good practices of other institutions around the world, and find its own way of internationalization. The internationalization of higher art education is not one-way, nor is it Westernization. It should not be equated simply with foreign exchange and cooperation in higher art education. It is two-way and pluralistic, and will express and act on all aspects of higher art education.

II The Chinese CAUs and Their Internationalization of Education

2.1 About the CAUs in China

According to the Chinese *National List of Institutions of Higher Learning(2019)*, so far, there are 632 colleges and universities in China offering undergraduate program on arts education (and above), and 48 of which are mainly and specially providing higher arts education, and 7 of whom are comprehensive arts universities, namely Nanjing University of

the Arts, Guangxi Arts University, Yunnan Arts University, Xinjiang Arts University, Inner Mongolia Arts University, Jilin University of Arts and Shandong University of Arts, which are geographically distributed in the eastern, southern, southwestern, northeastern, northern, northeastern, and the middle of China with strong regional characteristics. In the *Degree Granting and Talent Training Course Catalogue (2011)*, which was revised and issued by the Academic Degrees Committee of State Council and the Ministry of Education, ART has become the 13th subject category, named The Art Category, including 5 first-level disciplines: Artistic Theory, Musicology and Dancology, Drama and Film and Television Studies, Fine Arts, Design (can offer art or engineering degree), and offering 33 undergraduate majors. Different from the Central Conservatory of Music, China Academy of Art, Beijing Dance Academy and other professional art colleges with obvious characteristics and a few majors and professional subjects, CAUs cover most/all of the 5 first-level disciplines and most/all of the 33 undergraduate majors. Some schools, like Nanjing University of the Arts and Guangxi Arts University have even opened some Beng (Bachelor of Engineering), BSc (Bachelor of Science) and B.S.Mgt.Sci. (Bachelor of Science in Management Science) majors. 7 CAUs have more than 10,000 students in total, among which, Guangxi Arts University has the most number of students. There were 15,000 students by September 2019.

2.2 The Internationalization of China's CAUs

In 2016, The CPC Central Committee and the State Council of China issued the *Opinions on the Work of the Opening-Up of Education in the New Era* (hereinafter referred to as "Opinions"), proposing that we should persist in expanding opening up, strengthening China's education, promoting humanities exchanges, and continuously improving the quality of education, the national soft power and international influence of China. In this wake, great development opportunities for the internationalization of art education present themselves and facilitate the reform and development of China's comprehensive art education and the transformation and upgrading of art universities. In the Thirteenth Five-Year Plan (2016-2020) of each university, "implementation of 'Opinions'" and "internationalization of education" are regarded as important means to promote education reform, connotative development, and demonstrate the strength of education. It is hoped that by expanding the channels of international art cooperation and communication, CAUs will strive for the supplement of "external power" for the development of themselves;

and by enriching the connotation of Chinese and foreign art exchanges, and by organizing diverse artistic creation and cultural exchange activities with foreign universities to expand their international influence.

III The Advantages and Disadvantages of the Internationalization of CAUs

3.1 Interpreting the Important Role of Internationalization of Education

It is well-recognized that the Internationalization of Education plays an important role in the development of CAUs. In each university's Thirteenth Five-Year Plan, it has been expressed as: the "important path" for the future development of the institution, the "important content" of school education, and the "power supplement" to improve the quality of school education. However, their interpretation of the important role of internationalization of education in the long-term development of CAUs is neither comprehensive nor in-depth enough: 1) Being restricted by national borders. Failure to fully understand that internationalization is the trend of global higher education development, and to place higher art education in the era of globalization and review its reform and development; 2) Being restricted by school borders. Failure to fully understand that internationalization is an important way for universities to serve the national strategy of educational opening-up, and to serve as an important channel for national public diplomacy, involving education cooperation, teacher-student exchanges, academic cooperation, etc.. 3) Being restricted by the barriers of disciplines. Failure to fully understand the catalytic role of internationalization of higher education in breaking the boundaries between academic disciplines, and the role of leveraging "connotative" development of the school's education. These have often led to the blockade of education internationalization.

3.2 The Implementation of Internationalization Plans

Each CAU has put forward specific implementation plans and detailed measures for internationalization of their education. "Establishing an international art talent training base", "building an international exchange and cooperation platform on arts" and "breaking new paths for international academic research" have become the common key points. "Expanding enrollment of international students", "improving the internationalization level of the teaching staff" and "organizing international conferences" are common initiatives. However, the actual

situation is that the implementation of internationalization plans appears to be fatigued. 1) There is small number of international students, which is low in the ratio in the in-school students. By the end of 2018, there were only 712 international students in total in CAUs, accounting for only about 1% of the students in campus, far below the internationally recognized standards of 15%. 2) The internationalization process of the teaching staff is slow. During the Thirteenth Five-Year Plan period, from 2016 to 2020, there were 38 foreign excellent teachers newly employed by the 7 CAUs, and only 273 Chinese teachers go the chance to receive further education abroad. 3) The effectiveness of the curriculum internationalization construction is not significant, and the degree of internationalization of the curriculum is low. In addition to the introduction of international courses or some courses taught in English/foreign language by the Chinese-foreign cooperative education projects in 4 universities, there is no newly-opened international course. 4) There is no strong, scientific and rational operating mechanism in concentrating international power and carrying out in-depth scientific research and artistic creation.

3.3 The Introduction and Absorption of the International Advanced Experience

In the past two decades, China's CAUs have placed the introducing of international advanced experience as priority of educational internationalization. They have carried out in-depth exploration and extensive practice in cross-border education cooperation and in talent training, and encouraged the two-way flow of teachers and students in the international education. But in fact, they have been with poor efficiency in the introduction and the digestion of international advanced experiences. On the one hand, it is obvious that CAUs in China has been blindly aligning with the Western education streams. They have vague understanding to the questions of "why learn" and "who learns". All universities consciously and unconsciously apply mechanically Western universities' educational concepts, indicator systems, and quality standards to measure their level of education development and take it as "connecting with the international community". They strive to converge with the West, but not to accurately position and scientifically discuss the internationalization of the education in their university according to their development plan, Internationalization of Education is to accurately position and scientifically discuss, and to think and explore "harmony and difference" with other universities in the world. On the other hand, one-way introduction is dominant and two-way interaction is insufficient. There are no systematic implementation

steps and bold exploration and practice for “learning what” and “how to learn”, which is largely based on the one-way introduction of input-based and imitation but the "introduction" and "output" on art education, which are based on the “equality dialogue” and “mutual benefit and win-win cooperation” did not perform well in two-way interaction.

3.4 The Inter-School Internationalization Development Level among CAUs

Since 2000, the financial support for the internationalization of education in CAUs has increased exponentially, the opportunities for teachers pursue study abroad have multiplied, and the scales of international conferences have also been upgraded, and the CAUs have worked as a group to develop their internationalization level. However, due to the historical origins of the schools, the imbalance of economic and social development among regions, and the different local government's support for higher art education, there are gaps in the degree of internationalization of the institutions. 1) The imbalance in funding has made the scope of education internationalization varies. During the Thirteenth Five-Year Plan period, the ratio of the maximum financial support and minimum financial support in the seven universities on Internationalization of Education was 12:1, which directly affected the scope of internationalization of education in various universities. 2) The imbalance in the level of development of China-foreign education cooperative has made the difference in the content of internationalization of education. Shandong University of Arts, for example, has been approved as an independent legal entity for China-foreign education cooperation, and Nanjing University of the Arts, Guangxi Arts University and Jilin University of Arts have run China-foreign cooperative education projects respectively. It is more contentful in terms of international exchanges and interactions in education and outperforms other arts universities. 3) The imbalance in the level of international exchanges of teachers and students has caused different levels of the international influence among CAUs. The proportion of the teachers with international education background in 7 institutions is less than 10%, and the gap is as high as 8:1; the average annual number of students in overseas exchanges is less than 0.6%, and the gap between the largest number and the smallest number is 11.2:1.

3.5 The Internationalization of students' learning in CAUs

The ultimate goal of internationalization For CAUs is to progressively promote the internationalization of curriculum learning, to cultivate high-level art professionals with intercultural communication capability and international vision to adapt to the future

international competition, and to educate high-level artistic talents of international literacy, etc. However, the internationalization of students' learning has been moving forward slowly. First, the degree of internationalization of the course content is low. The supplementation of the world-famous courses to the current school teaching system is still at a low level. Second, the expansion of the international content in the subject learning is not high efficient. For example, the network open courses, such as MOOCs, are not fully utilized, so that students have got little chance to get conation with the latest international learning materials. Third, the international master courses are fewer. The international renowned masters of culture and arts walking into CAUs and having lectures are still not routinization. Fourth, there are fewer courses instructed in English and with original textbooks. Even some schools has opened such courses, they are bilingual or limited to be instructed by foreign teachers.

IV Lessons for the Internationalization of CAUs in China

Due to the large number of higher education institutions (according to the National List of Institutions of Higher Learning published by the Chinese Ministry of Education, by June 15, 2019, there were 2,956 institutions of higher learning in China), China at present hasn't have any national measurement indexes yet for Internationalization Education with specific development goals and operational implementation strategies of higher education in China. "China Education Modernization 2035" (2019) regards "creating a new development pattern of education opening-up" as one of China's top ten strategic tasks for education modernization. It is necessary to comprehensively improve the level of international exchange and cooperation in Chinese education, so the current domestic and international education trends are driving the internationalization of higher art education in China go as well from the stage of "expanding scale" to "upgrading quality and improving efficiency". Chinese CAUs should combine international advanced experience with domestic advantages, combine the national development plan with their teaching reformation, combine the local policy adjustment with internal school governance, and promote the vigorous development of internationalization of education in their school.

4.1 Adhering to the Principle of Global Development and Thorough Implementation of the National Policy of Education Opening-up

Economic globalization has spawned the internationalization of higher education.

CAUs should place themselves against the background of the macro-political and economic vicissitudes of the world, plan and practice the reform and development of education with a broad international perspective of the national mission and the community of shared human destiny. The "Opinions" proposes "to persist in opening-up, strengthening China's education, promoting humanities exchanges, and continuously improving China's education quality, national soft power and international influence." For Chinese CAUs, *Higher Education must be perceived in international perspective* and the *American Competitiveness through International Openness Now Act 2008* in the United States and the successful implementation of the *Erasmus Plan* and the "Erasmus+" Plan in European, must be boldly introduced and absorbed. Japan, South Korea, Thailand and other Asian countries have a strong experience in education internationalization, which should also be learned. CAUs can refer to the outstanding achievements in the implementation of Thailand's "World-class University Plan" can also be a reference. And efforts should be made to instill the concept of education openness into their faculty and champion their philosophy of higher education internationalization; introduce quality educational resources in an all-around manner, and sharpen their international competitive edge through "content internationalization"; layout the plans of internationalization of education to carry out "internationalization in action". In order to serve the internationalization of schools, disciplines, scholars and students, and promote comprehensive reform of schools, and realize the modernization of university governance.

4.2 Adhering to the Implementation of the Internationalization Strategies and Comprehensive Facilitation the Internationalization of Various Factors in University Education

The *Overall Plan for Promoting the World-Class University and First-Rate Discipline Construction*, which was promulgated by the State Council in 2015, take "promoting international exchanges and cooperation, strengthening substantive cooperation with world-class universities and academic institutions, strengthening international collaborative innovation, and effectively improving international competitiveness and the discourse power of China's higher education" as one of the five reform tasks. The CAUs in China should ensure funding, and take into account the internationalization of various factors involved in

the construction of “world-class university” on the basis of the dimension of “international talent training”. **1) To promote the internationalization of institutions.** This not only means that the institution is widely recognized by the world in terms of reputation, but also refers to the school's efforts to cultivate "global" or "global +" talents that adapt to the future society, to assume responsibility for solving the problems on international cultural and artistic development, and to promote social identity and create a peaceful and inclusive social form under the framework of the *UN 2030 The Sustainable Development Agenda*. **2) To promote the internationalization of students.** Strengthening the two-way flow of students and strengthen cross-border cooperation and education. On the one hand, CAUs will make every effort to improve the quality of international education, improve the enrollment mechanism for international students, and build world-known study destinations. On the other hand, relying on quality education programs, CAUs will establish talents cultivation bases in collaboration with our counterparts abroad. **3) To strengthen the internationalization of faculty.** Scheming *Regulations on High-Level Talent Introduction and Management* to support the "Blood Transfusion Project on Art Talents Cultivation", aim at recruiting and employing international experts and faculty to work in China. At the same time, we will launch "Hematopoiesis Project", which means sending local excellent teachers to receive further education overseas, on the base of establishing a long-term mechanism for teachers' international training and building overseas training center(s). **4) To accelerate the internationalization of the curriculum.** It involves exploring the internationalization of the textbook system, teaching content, teaching process and evaluation methods in CAUs. To be specific, it contains: improving the internationalization ratio of the curriculum, and to include the world-famous courses as a replenishment to the ordinary systematic subject teaching; deepening the reform of Chinese-foreign cooperative education curriculum, and to combine the advantages of the foreign training standards with Chinese educational requirements to improve the current education standards; to open more English or bilingual teaching courses; to make full use of online open courses such as MOOCs to introduce more foreign classes into the curriculum system; to continue to promote the cross-border curriculum cooperation, such as the “customized courses” for students majoring in Cultural Management by Guangxi Arts University (China) and Silparkorn University (Thailand). **5)**

The internationalization of scientific research and artistic creation. On one hand, to solve the problems in higher art education, in cultural heritage and protection, in social art development and in other issues of common concern, CAUs could strengthen the cross-border cooperation with international scientific research teams to come up with solutions, and take it as a respond to the social needs. On the other hand, taking national art as the source and following the guide of the international market demand, CAUs could strengthen cooperation and accelerate the interaction and integration with international culture institutions and companies in the fields of dance, music, fine arts and cultural innovation, AI product design, online art education and other emerging art areas. 6) **The internationalization of logistics support.** Building a professional working team is the priority, especially focusing on their ability of international coordination and cooperation, and their foreign language proficiency. If necessary, sending them to receive special training in overseas is a good way. What is more, to create a campus environment with high diversity and international understanding, to establish a high-quality team of international student counselors and logistics management teams, to construct an information supporting system, and to set a “homogeneous” management system equally for Chinese and foreign teachers and students.

4.3 Building a International Higher Art Education Community to Jointly Respond to the Challenges of Globalization

Xi Jinping’s initiative to build a community with a shared future has deepened human’s understanding of the construction of community in the world: replacing the old ideas of “zero-sum game” with new ideas of “cooperation and win-win”, and connecting the dreams of the Chinese people closer to the common aspirations of people of all countries. Building an international higher art education community is an active and positive factor of, and an important part of building a community of human destiny. It can be realized through two channels:

On the one hand, constructing regional international art education organizations and assuming the responsibility of regional social culture and art development. On the basis of in-depth cooperation, CAUs could vigorously promote the creation of regional international art education community between Guangxi Arts University and Southeast Asia,

Yunnan Arts University and South Asia, Xinjiang Arts University and Central Asia, Jilin University of Arts and Russia, Shandong University of Arts and South Korea, and Inner Mongolia Arts University and Mongolia. For example, initiated by Guangxi Arts University, ASEAN-China Centre, and Southeast Asian Ministers of Education Organization Regional Centre for Higher Education and Development (SEAMEO-RIHED), the ASEAN-China Arts College Alliance(ACACA)was founded in2007 , comprising of 8 Chinese art universities and 11 ASEAN arts institutions of higher learning. Against the backdrop of deepening strategic partnership, by consolidating cooperative foundation and enriching format and contents therein, it is the common aspiration of the members of ACACA to make concerted efforts to foster a new generation of artists who are equipped with cross-cultural knowledge and international competency; to conduct high-level joint research and creation of the arts come up with innovative solutions to the development of cultural and artistic industries in the region; to promote cultural and artistic prosperity in the region.

On the other hand, join the international art organizations and actively participate in the governance of global higher arts education. Actively integrating into the management of international higher art education, CAUs can issue the voice of China and showcase the achievements of Chinese higher art education. They can also provide a "China program" to the challenges of globalization, and contribute "Chinese wisdom" to solving the problem of global cultural and art education development. Take Guangxi Arts University as example, it continuously act actively in the world of modern music as a member of the International Society for Contemporary Music (ISCM) and contribute to the creation and promotion of modern music with the other 50 full members. Nanjing University of the Arts is committed to the development of international art design education, academic research and practice exchanges and cooperation as a member of the International Association of Universities and Colleges of Art, Design and Media (CUMULUS). Both of the two universities mentioned above are the founding members of China-Europe Education Alliance for humanities and Arts. It is necessary for them to push forward the China-Europe arts and higher art education exchanges and cooperation on the principles of openness, inclusiveness, equal dialogue, mutual assistance and mutual benefit, and win-win cooperation.

4.4 Strengthening the Exchange of Higher Art Education between China and Foreign Countries and Consolidating the Humanities Foundation for Regional Development

The art exchange, talent cultivation and education cooperation that involved in internationalization of higher art education are the main carriers of "humanistic foundation for the community of shared human destiny. China's CAUs should vigorously explore and practice the humanistic communication model, namely "mechanism + platform + activities" ,to jointly build a solid humanistic foundation.

The first is to establish an international art exchange innovation mechanism. CAUs should enrich the “Center + Team + Project” international art exchange mechanism that they created and extend it to other art universities. The “center” here refers to the China-ASEAN Training Center for Artists which was jointly established in Guangxi Arts University by the Chinese Ministry of Foreign Affairs and the Ministry of Education in 2012 and "China-Russia Art Universities Exchange Base" which was established by the Ministry of Education in Jilin University of Arts and other high-level collaborative centers for higher art education. The “center” invites well-known Chinese and foreign cultural and art experts to form different “teams” on their discipline backgrounds, and make full use of their international communication capabilities and international relation networks to host various exchange “projects”, undertaking the training tasks from higher authorities and the special training programs for foreign art institutions. For example, in the China-ASEAN Training Center for Artists has organized 17 training classes, like Training Class for Excellent Young Artists of Song and Dance Theatre of Vietnamese Army, and have trained more than 700 Chinese and foreign art talents.

The second is to build high-end platforms for international art exchange. In addition to actively hosting international art exchange activities such as the "China-Italy Art Exchange Year" and "China-France Cultural Exchange Program", CAUs should also emphasize the creation of a high-end platform by China and in China for international art exchange. For example, since the new millennium, the Guangxi Arts University has successively created platforms such as China-ASEAN Music Week, China-ASEAN Dance Education Forum, and China-ASEAN Architecture and Space Education Forum to promote extensive communication on music, dance, fine arts, and higher education in China-ASEAN

region. What deserve to be mentioned is that the China-ASEAN Music Week has become one of the three most important platforms for modern music exchange in China. Each year, thereabout 300 performers, scholars, teachers and students from about 30 countries and regions around the world come to join the event.

The third is to hold more international art exchange events. CAUs should actively implement the exchange and cooperation agreement on inter-governmental cultural and art education, and vigorously promote the implementation of the China-ASEAN Strategic Partnership 2030 Vision, Sino-US cultural cooperation projects, Sino-British high-level cultural exchange mechanism, Sino-French Cultural Exchange Year and other bilateral and multilateral cultural projects. At the same time, they should spend efforts in actively expanding international art communication channels, enhancing the mutual communication and cultural mutual recognition of art education between Chinese art universities and the foreign universities along the “Belt and Road”, and giving full play to the role of “soft power” of art education in “Belt and Road” initiative by China.

V. Conclusion

CAUs are far from perfect in terms of art talent cultivation, and promoting internationalization in them will no doubt sharp their comprehensive edge. They should place international art talents cultivation at their priority, boost exchanges with their counterparts abroad, make "Chinese voices" heard in the international higher art education community, tell the "Chinese story" to the world, contribute their bits to the development of global higher art education community, joining hands with their counterparts abroad in response to the severe challenges of globalization, and secure the common prosperity of global art education.

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Papers



Asst. Prof. Dr. Pichayalak Pichayakul

**Cultivating Entrepreneurship Attributes through
Communication for Business Results Class**

Cultivating Entrepreneurship Attributes through Communication for Business Results Class

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Abstract:

This research was conducted to determine the degree the course “Communication for Business Results” cultivates entrepreneurship attributes for university students. In this course, the students learn how to communicate for innovative business development, to build teams, to conduct a target market analysis survey, and to analyze business data. The research is based on Schumpeter (1965) who defined “entrepreneurs as individuals who exploit market opportunity through technical and/or organizational innovation.” To achieve the purpose of this study, the researcher, also an instructor of the course, adopted both qualitative and quantitative methodologies including using questionnaire, direct observation, and semi-structured interview methods. The population of this research are 293 enrolled students of this course. The researcher applied quota sampling technique and collected data from 68 students. The results reveal that through Communication for Business Results Course, all of the teaching/learning methods being implemented in the class were rated by students at “High” level. The top 3 rated are discussions with team members, applying “Devil’s Advocate” method, and developing target market testing survey, respectively. Regarding the top 3 factors that have the largest differences when comparing the degree of entrepreneurship attributes before and after taking the course are doing new things, ability to conduct target market test to learn the actual market needs, and ability to forecast reasonable market opportunity. It is found that that the students are satisfied with the integration of various teaching/learning methods. They enjoyed the class especially when they had opportunities to speak in every class. It is notable that the informants liked the Devil’s Advocate method since it helps them to develop their critical thinking skills. Applying this technique, allowed students the opportunity to ask critical and constructive questions as well as develop an open-mind and listening skills which will help them to be aware of the risks in business.

Keywords: Entrepreneurship, Communication, Business

Introduction

Entrepreneurship became an essential skill for people around the world including Thailand. In 2018, the Science and Technology Ministry of Thailand announced its goal to make Thailand a “startup nation,” attracting 1,000 new local startups a year by 2021. In addition, it targets to have startups generate 5% of the country's GDP in three years (Suchit Leesa-nguansuk, 2018). There is an interesting survey by Sea Group in partnership with the World Economic Forum which

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conducted a survey on 42,000 respondents aged under 36 years whom completed the Youth and Entrepreneurship in Thailand 4.0 in July 2018. The results of this survey showed that Thailand has the largest percentage of youth (36%) who want to become entrepreneurs in the future. It was found that those youth were motivated by income and work-life balance when looking for careers (Jirapan Boonnoon, 2018).

Academic institutions are trying to cultivate entrepreneurship attributes for students in a variety of pedagogies. In this research, the researcher, who is a lecturer, focuses her study on her own institution, the Faculty of Business Administration, Chiang Mai University. The Faculty designed its curriculum to develop entrepreneurship. One of the effort is by setting Communication for Business Results Course as a core course that all of the Business Administration students shall take. In each academic semester, there are around 300 students registered in this course. The course objectives are to develop English communication skills as well as to cultivate entrepreneurship attributes for students. In this course, the students learn how to communicate for innovative business development, to build teams, to conduct target market analysis survey, and to analyze business data. Throughout the course, the students are assigned to develop a business project starting from developing an innovative idea to target market testing and finally issues surrounding social responsibility. They have to review a number of related business articles, to observe, to talk to people and to discuss in teams to come up with a rationale innovative business idea proposal (Communication for Business Results syllabus, 2019).

This research was conducted to determine the degree the course “Communication for Business Results” cultivates entrepreneurship attributes for university students. The result of this research will be beneficial to improve the pedagogy not only of this course but also of other courses that aims to cultivate entrepreneurship attributes for the students.

Literature Reviews

1. Entrepreneurship Concept

This research is based on Joseph Alois Schumpeter’s entrepreneurship concept (1911). Schumpeter is one of the most influential economists of the 20th century. He popularized the term "creative destruction" in economics. He insisted that the economies change over time and there is something which prevents the occurrence of equilibrium. He pinpointed that this driving force which renders the economic process a continuous ever-changing process is crucial factor. This

[2]

disruptive element of crucial factor is called “innovation” by Schumpeter (1911). Schumpeter claimed that innovation disrupts any economic equilibrium and prevents a standstill. Therefore, innovation cannot happen by chance. It is initiated by people with a passion to change things to be better and who would not be satisfied with a static state of equilibrium. Schumpeter called this passionate person “entrepreneur.”

The entrepreneur becomes the core element of Schumpeter’s dynamics of economic change. The entrepreneur introduces new products, new production methods, new markets, new materials, and new organizations. This entrepreneur in Schumpeter’s definition innovates whereas others simply follow along the lines to imitate the innovator.

According to Schumpeter (1950), “an entrepreneur is a person who is willing and able to convert a new idea or invention into a successful innovation. Entrepreneurship forces “creative destruction” across markets and industries, simultaneously creating new products and business models. In this way, creative destruction is largely responsible for the dynamism of industries and economic growth.” In 1965, he defined entrepreneurs more concisely as “individuals who exploit market opportunity through technical and/or organizational innovation.”

2. Teaching Strategies

There are a number of teaching strategies that are widely implemented in the higher education institutes. In this research the prominent strategies are applied (George Mason University, 2019) as follows:

2.1 Lecture – Since the old days, the lecture method was the most widely used instructional strategy in college classrooms. Although the usefulness of other teaching strategies is being widely examined in this era, the lecture still remains an important way to communicate information. Used in conjunction with active learning teaching strategies, the traditional lecture can be an effective way to achieve instructional goals. The advantages of the lecture approach are that it provides a way to communicate a large amount of information to many listeners, maximizes instructor control and is non-threatening to students. The disadvantages are that lecturing minimizes feedback from students, assumes an unrealistic level of student understanding and comprehension, and often disengages students from the learning process causing information to be quickly forgotten.

- 2.2 Discussion - There are a variety of ways to stimulate discussion such as requiring the students to pair up and discuss about the class content or recent issues that are related to the class. This strategy can also be implemented in large and small groups. A successful class discussion involves planning on the part of the instructor and preparation on the part of the students. Instructors should communicate this commitment to the students by clearly articulating course expectations.
- 2.3 Active Learning - Active learning can be done by providing learning environments that allow students to talk and listen, read, write, and reflect on the course content through problem-solving exercises, informal small groups, simulations, case studies, role playing, and other activities. The main purpose is to allow the students to apply what they are learning. It was found from many studies that learning is improved when students become actively involved in the learning process. Instructional strategies that engage students in the learning process stimulate critical thinking and a greater awareness of others perspectives.
- 2.4 Cooperative Learning - Cooperative Learning is a systematic pedagogical strategy that encourages small groups of students to work together to achieve a common goal. This means the students will be assigned to work in a group where they can choose their own team members or where the instructor assigned the team members for them. This strategy, in principle, would highly stimulate student/faculty discussions and encourage electronic exchanges. To perform well in the class, the students must be able to work in a team by leading, compromising, and listening to the others.
- 2.5 Devil's Advocacy Technique - The Devil's Advocacy Technique involves developing a solid argument or a question to take another perspective from what is known or said. The technique calls into questions the assumptions that are presented. . This technique is widely used in the business sector. In addition, this idiomatic expression is one of the most popular present-day English idioms used to express the concept of arguing against something without actually being committed to the contrary view (Ryan T. Hartwig, 2019).

Research Methodologies

To achieve the purpose of this study, the researcher, also an instructor of the course, adopted quantitative in conjunction with qualitative methodologies. The quantitative methodology

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used structured questionnaires to collect data. The numeric data were analyzed and reported in terms of frequency, percentage, and mean. The qualitative methodologies include direct observation and semi-structured interviews to collect data in order to gain further understanding of the students' response.

The population of this research are 293 enrolled students of this course. There are six sections of this course and three instructors are teaching this same course and are responsible for their own sections. The researcher applied quota sampling technique by selecting two out of the six sections. In addition, the research applied purposive sampling technique by choosing the sample group from the two sections the researcher is responsible. This was done so that a direct interaction with the informants could occur. The total number of the samples are 102 students. The students responded to the questionnaires on a voluntary basis and there were 68 student respondents which is 67 percent of the expected number.

Results

The results are reported in 3 parts as follows.

Part 1: General information of informants

The informants consisted of 68 students. Most of the informants (98.53%) are second year students and there is only one (1.47%) fourth year student. There are 37 females (54.41%) and 31 males (45.59%) students. Their most desired occupations are to: 1) work for own business (39.71%), 2) work for own family business (27.94%), 3) work for private organization (20.59%), and 4) work for the government (11.76%), respectively.

Table 1: General information of the informants

General information	Number of student	Percentage
Year of study		
1	0	0.00%
2	67	98.53%
3	0	0.00%
4	1	1.47%

Table 1: General information of the informants (Continued)

General information	Number of student	Percentage
Gender		
Female	37	54.41%
Male	31	45.59%
Most desired occupation		
1.Work for government	8	11.76%
2.Work for private organization	14	20.59%
3.Work for own family business	19	27.94%
4.Work for own business	27	39.71%

Part 2: Level of effectiveness of teaching/learning methods rated by students

Part 2 informs about the level of effectiveness of teaching/learning methods that are being implemented in the class and rated by the students. The researcher explained the definition of “effectiveness of teaching/learning” to the informants as “the outcome of the teaching/learning methods that offer the highest level of gaining knowledge and skills about Entrepreneurship for the students”.

As shown in Table 2, all of the teaching/learning methods being implemented in the course were rated by students at a “High” level. The top 3 rated are discussions with team members (4.16), applying “Devil’s Advocate” method to challenge other teams’ idea and to get feedback towards your own team’s idea (4.13), and developing target market testing survey (4.13), respectively.

Table 2: Degree of effectiveness of teaching/learning methods rated by the informants

Teaching/Learning methods	1	2	3	4	5	Mean	Level	Rank
1.Lecture by instructor	1 1%	5 7%	15 22%	32 47%	15 22%	3.81	High	9
2.Read / research for data on own	0 0%	2 3%	17 25%	35 51%	14 21%	3.90	High	7
3.Discuss with team members	0 0%	2 3%	12 18%	27 40%	27 40%	4.16	High	1

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Table 2: Degree of effectiveness of teaching/learning methods rated by the informants (Continued)

Teaching/Learning methods	1	2	3	4	5	Mean	Level	Rank
1.Lecture by instructor	1 1%	5 7%	15 22%	32 47%	15 22%	3.81	High	9
2.Read / research for data on own	0 0%	2 3%	17 25%	35 51%	14 21%	3.90	High	7
3.Discuss with team members	0 0%	2 3%	12 18%	27 40%	27 40%	4.16	High	1
4.Discuss with instructor	0 0%	3 4%	19 28%	30 44%	16 24%	3.87	High	8
5. Applying “Devil’s Advocate” method to challenge other teams’ idea and to get feedback towards your own team’s idea.	0 0%	1 1%	12 18%	32 47%	23 34%	4.13	High	2,3
6. Giving and receiving “mock” scores for other team and your own team’s business idea.	1 1%	2 3%	22 32%	31 46%	12 18%	3.75	High	10
7.Developing target market testing survey	0 0%	2 3%	11 16%	31 46%	24 35%	4.13	High	2,3
8.Communicating with (outside-of-the-class) people when conducting target market testing survey	0 0%	1 1%	19 28%	32 47%	16 24%	3.93	High	6
9.Oral presentation in front of the class	0 0%	1 1%	15 22%	34 50%	18 26%	4.01	High	5
10.Making visual aids for presentation such as info graphics and PowePoint slides	0 0%	0 0%	17 25%	29 43%	22 32%	4.07	High	4

Degree of effectiveness (Based on Likert Scale)

1=Lowest, 2 = Low, 3 = Medium, 4. High, 5 = Highest

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Interpretation of Degree of effectiveness

4.21 – 5.00 = Highest; 3.41 – 4.20 = High; Range 2.61 – 3.40 = Medium; 1.81 – 2.60 = Low;

1.00 – 1.80 = Lowest

Part 3: Comparison of entrepreneurship attributes for students before and after taking the Communication for Business Results Course

Part 3 discusses the level of entrepreneurship attributes by comparing student's rating of attributes in a before and after method of taking the Communication for Business Results course. The "before and after" questions in this research are on the same questionnaire. The researcher intentionally put the comparison on the same questionnaire so that the students could self-reflect on the level of their entrepreneurship attributes point by point at the same time to avoid potential variances. The afore mentioned variances may be caused by several factors such as the mood of the informants if responding to the questionnaires on a different day, etc. The researcher applied the definition of "entrepreneur" given by Schumpeter (1965)'s as "Entrepreneur is an individual who exploits market opportunity through technical and/or organizational innovation." For the "exploits market opportunity" component, the researcher used 4 factors in the survey as follows: 1) ability to come up with the rationale product idea 2) ability to conduct a target market test to learn the actual market needs 3) ability to compare and analyze the business competitors and your own business, and 4) ability to forecast reasonable market opportunity. For the "innovation" part, the researcher used 2 factors as follows: 1) doing of new things – ability to come up with a totally new product concept that never existed in this world and 2) doing of things that are already being done in a new way – ability to research and analyze existing-business concepts and adjust to be your own idea. Not just copy, but to review concepts and practices and to re-design to fit the student's own business concept.

The results showed that the top 3 factors that have the largest difference when comparing the degree of entrepreneurship attributes before and after taking the course are doing of new things – ability to come up with a totally new product concept that never existed in this world (Innovation) (0.56), ability to conduct target market survey to learn the actual market needs (exploit market opportunity) (0.51) and ability to forecast reasonable market opportunity (exploit market opportunity) (0.51), respectively. The results are shown in table 3.

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Table 3: Comparison of Entrepreneurship Attributes for students before and after taking the Communication for Business Results Course

Entrepreneurship attributes	Before					After					After vs Before	Rank of change				
	1	2	3	4	5	Mean	Level	1	2	3			4	5	Mean	Level
	0%	10%	20%	30%	40%	50%	High	0%	10%	20%			30%	40%	50%	High
1. Exploit market opportunity																
1.1 Ability to come up with the rationale product idea.	0	10	30	18	10	3.41	High	0	4	12	38	14	3.91	High	0.50	4
1.2 Ability to conduct market test to learn the actual market needs.	0	9	26	29	4	3.41	High	1	4	11	35	17	3.93	High	0.51	2,3
1.3 Ability to compare analyze the business competitors and your own business.	0	5	27	27	9	3.59	High	1	2	13	35	17	3.96	High	0.37	6
1.4 Ability to forecast reasonable market opportunity.	0	7	33	20	8	3.43	High	0	3	15	33	17	3.94	High	0.51	2,3

Table 3: Comparison of Entrepreneurship Attributes for students before and after taking the Communication for Business Results Course (continued)

Entrepreneurship attributes	Before					After					After vs Before	Rank of change		
	1	2	3	4	5	Mean	Level	1	2	3			4	5
2. Innovation														
2.1 Doing of new things – Ability to come up with a totally new product concept that never exist in this world.	0	12	25	19	12	3.46	High	0	1	15	34	18	4.01	High
	0%	18%	37%	28%	18%			0%	1%	22%	50%	26%		
2.2 Doing of things that are already being done in a new way – Ability to research and analyze interesting existed-business concepts and adjust to be your own idea. (Not copy, but review and re-design)	1	5	27	25	10	3.56	High	1	1	12	34	20	4.04	High
	1%	7%	40%	37%	15%			1%	1%	18%	50%	29%		
Degree of effectiveness (Based on Likert Scale): 1=Lowest, 2 = Low, 3 = Medium, 4. High, 5 = Highest														

Interpretation of Degree of effectiveness: 4.21 – 5.00 = Highest; 3.41 – 4.20 = High; Range 2.61 – 3.40 = Medium; 1.81 – 2.60 = Low;

1.00 – 1.80 = Lowest

Part 4: Suggestions

To gain further understanding of the students' response, the researcher also applied direct observation and semi-structured interview methods. As a result, the research retrieved feedback that are useful to adjust the learning/teaching methodologies of this course and to improve the effectiveness of the course. The major feedback that the students are satisfied with the integration of various teaching/learning methods. They enjoyed the class especially when they had opportunities to speak in every class. One of the students said *“This subject is very important and forces me to speak English often and I can easily talk with my friends more than in the past.”*

It is notable that the informants liked the devil's advocacy technique. None of the classes they have taken had applied this technique. The students appreciated this technique since it helps them to develop their critical thinking skills. Applying this technique, they not only were able to ask critical and constructive questions, but they also developed an open-mind and increased their listening skills, which helps them to be more aware of the risks in the business.

Some of the informants suggested that they would like to do a better presentation by having a full presentation rehearsal so that they would receive feedback from the teacher and their classmates so that they would have an opportunity to improve their performance.

Discussion and Conclusion

Entrepreneurship attributes are necessary for people in this disruptive era. Besides Thailand as mentioned earlier, the other countries such as China and Malaysia are announcing policies to promote entrepreneurship education in the higher education level. Therefore, the higher education institutions in Thailand shall take responsibility to provide such knowledge and skills to the younger generation. This research used Communication for Business Results Course as a case study to prove that entrepreneurship attributes can be effectively cultivated in the students. The result of this research is aligned with the research “The impact of higher education on entrepreneurial intentions of university students in China” in which the data was collected from students of Tongji University in Shanghai, China. It suggested that higher educational institutions should develop more flexible approaches with focus on different groups of students in accordance with their various educational backgrounds (Sizong Wu and Lingfei Wu, 2008).

This research result is also in line with the research “A Review of Entrepreneurship Education for College Students in China” which indicated that the Chinese government set a policy

for the higher education institutions to put an emphasis on entrepreneurship education. As a result of this policy, universities around China has been actively promoting entrepreneurship through its education and have become highly successful (Mansheng Zhou and Haixia Xu, 2012).

According to the research entitled “Entrepreneurial Culture in Institutions of Higher Education: Impact on Academic Entrepreneurship,” it suggested that within academic institutions a culture of entrepreneurship is the most important factor in generating economic gains from university entrepreneurial activities. In other words, to encourage students to conduct hands-on entrepreneurial activities is crucial to cultivate entrepreneurship attributes to the students. This suggestion supports the teaching concept of the Communication for Business Result Course in assigning students to develop practical innovative business ideas (Osiri, J K; McCarty, Margaret M; Jessup, Leonard, 2013.)

Referring to the research “Estimating the effect of entrepreneur education on graduates’ intention to be entrepreneurs,” it was noted that Malaysian government enacted policies in terms of cultivating educated entrepreneur such as promoting the entrepreneurship education among higher institutions of education. The research was conducted by collecting data from 2,300 graduate students in Malaysia and found that the majority of the respondents would like to become entrepreneurs. This finding is similar to the result of this research where the majority of the informants’ most desired occupation is to work for their own business. According to the Malaysian Ministry of Education (MoE), only 1.7 percent (as of 2013) of university graduates are self-employed, that is managing one’s own business or known as graduate entrepreneurs. Consequently, a huge gap exists between what is targeted by the government (5.5 percent by 2015) and the reality (a small number of graduate entrepreneurs). As a result, the Malaysian researcher suggested that entrepreneurship education should be conducted in terms of both formal and informal education to be integrated into the curriculum in order to cultivate entrepreneurial intentions (Mohamad, N., Lim, H., Yusof, N. and Soon, J., 2015.)

Limitation

Due to the limitation of data collection time, the researcher evaluated the levels of entrepreneurship attributes of the students by inquiring the students to rate themselves. However, the result will be more accurate if the researcher collect the data from the same group of informants

after they graduated. The data collection methods should be via a different approach such as interview about their current work and their actual performance.

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Papers

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Gender Concepts in University Entrance System of Myanmar

Gender Concepts in University Entrance System of Myanmar

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Abstract: *The aim of this research is to investigate gender concepts with reference to university entrance system. In the current situation of Myanmar, when students pass their matriculation examination, they join the universities and institutions with the help of Guidebook for University Entrance published by Ministry of Education. When male and female role characteristics are investigated, theories proposed by Reese (2000) and Copenhaver (2002) are used. In the guidebook, three groups are classified: (a) 85 institutions, (b) 27 specialized subjects in Arts and Science Universities and (c) other universities. When this book is analyzed, it is found that some institutions are gender-prioritized and some are non-gender-prioritized in their entrance system. As a result, in group (a), 50 (58.8%) institutions are gender-prioritized and 35 (41.2%) of these are non-gender-prioritized. Gender-prioritized Institutions are also divided into three main categories: Male-prioritized institutions, Female-prioritized institutions and other institutions that male and female proportions are equal. 37 institutions that amount to 43.5% are male-prioritized, 2 (2.4%) institutions are female-prioritized. In 11 (12.9%) institutions, male and female proportions are equal. There are 27 specialized subjects and out of 27, 2 (7.4%) subjects are male-prioritized. The rest 25 (92.6%) subjects are non-gender-prioritized. Group (c) is also non-gender-prioritized. All in all, it is found that females have less opportunity than males to join some professional institutions though gender equality is found to some extent. This is partly because of stakeholders. According to the results of interviewing ten students, parents have an influence on them in choosing the universities. In addition, the impact of female role characteristics such as non-competitive and non-ambitious can also be found in this research. These characteristics are barriers in joining the professional institutions. Therefore, it is necessary to engage women in more competitive environment and to possess more opportunities for better education.*

Key words: university entrance system, male and female role characteristics, gender-prioritized

Introduction

Gender denotes the social phenomenon of distinguishing males and females based on a set of identity traits (Edwards, 2015). According to Bot (2018), gender equality means that the different behaviours, aspirations and needs of women and men are considered, valued and favoured equally. Gender equity casts light on “fairness of treatment for women and men” which may depend on their respective needs. This may be equal treatment or treatment that is different but which is considered equivalent in terms of rights, benefits, obligations and opportunities” (Mencarini, 2014). Gender equality and quality education are the sustainable development goals. Higher Education should be inclusive, open to people of all backgrounds and ages. Therefore, accessibility to higher education ought to be gained to the lens of gender.

In colonial days, some parents were not too willing to continue the girls’ schooling after eleven plus because education was expensive and the boys needed it more than the girls, who would eventually find husbands to support them (Khin Myo Chit, 1995). After the Second World War, parents became more enthusiastic about educating the daughters and they approved of their going out to work. Nowadays, in Myanmar Education System, higher education is accessible to both males and females. The striking point is that enrollment of women in higher education institutions in Myanmar is significantly greater than enrollment of men. In 2012, 59 percent of undergraduate students, 80 percent of master’s degree students and 81 percent of Ph.D. students were female (Olk, 2018). Though women hold graduate and post graduate qualifications than men, they have fewer opportunities in labour market and economic participation. There are a few researches on gender equality in education in Myanmar context. According to Pansy Tun Thein (2015), educated men tend to have more opportunities for career advancement, whilst educated women are favoured for low paying jobs. Moreover, according to Ms. Shwe Zin Linn Phyu (2019), gender discrimination in higher education plays a significant role in determining the future careers of women in Myanmar. The present research examines whether gender role characteristics and entry system in higher education are related or not.

Gender inequality within the education system is the different entry requirements for men and women into professional institutions. In some professional institutions, women’s marks are higher than men’s marks. Thus, the aim of this research is to investigate gender concepts with reference to university entrance system. In this research, Guidebook for University Entrance

published by Ministry of Education is analyzed. 10 female students who are attending the university at present are interviewed.

Literature Review

The Ministry of Education's Comprehensive Education Sector Review (CESR, 2012-2014) calls for the development of education laws and policies to address gender inequalities and National Strategic Plan for the Advancement of Women (NSPAW) highlights the need to eliminate customs, superstitions and beliefs that are obstacles to women's education (Pansy Tun Thein, 2015). Such obstacles are often founded in gender stereotypes. They influence access to higher education institutions and career opportunities. Gender equality indicates that people are free to make choices without the limitation set by stereotypes. Theories proposed by Reese (2000) and Copenhaver (2002) are used when stereotypical role characteristics of males and females are investigated. Reese (2000) states that there are differences in male and female roles. Men have greater size and strength; women have lesser size and strength. Mentally, men are excellent at spatial and mathematical skills and logic whereas women are better at verbal and social skills and empathy. Moreover, women are more commonly associated with nurturing and have passive behavior. Copenhaver's (2002) role category of Behavior Characteristics is also used to investigate whether stereotypical roles of men and women are related to quotas for male and female representations in professional institutions.

Behavior Characteristics

Masculine

- Non-emotional/non-excitabile
- Objective
- Competitive
- Logical/rational
- Self-confident
- Ambitious
- Provide security/stability
- Act alone

Feminine

- Emotional/Excitable
- Subjective
- Non-competitive
- Illogical/Irrational
- Non-Self-confident
- Non-ambitious
- Need security/ stability
- People oriented/others considered first

University of Foreign Languages, Mandalay University of Foreign Languages, National Management Degree College, Mandalay Degree College, Co-operative Universities and Degree Colleges, Lacquerware Technology College and National Universities of Arts and Culture are included.

In three groups, some institutions are gender-prioritized and some are non-gender-prioritized in their entrance system. Gender-prioritized institutions are divided into three main categories: (1) Male-prioritized institutions, (2) Female-prioritized institutions and (3) Other institutions that male and female proportions are equal. Male-prioritized institutions are University of Dental Medicine Yangon, University of Dental Medicine Mandalay, University of Community Health Magway, Myanmar Aerospace Engineering University, Technological Universities, and Myanmar Maritime University. The percentage of male and female proportions in Male-prioritized institutions are shown in Table 1.

Table 1: The Percentage of Male and Female Proportions in Male-prioritized Institutions

No.	Male-prioritized Institutions	Male %	Female %
1.	Universities of Dental Medicine	60	40
2.	University of Community Health	80	20
3.	Myanmar Aerospace Engineering University	80	20
4.	Technological Universities	60	40
5.	Myanmar Maritime University	80	20

Male-prioritized specialized subjects are Sport and Geology. Female-prioritized institutions are University of Nursing, Yangon and University of Nursing, Mandalay. Frequency and percentage of male and female proportion that are allowed to attend the Institutions and specialized subjects are calculated and shown in the Table 2.

Table 2: Frequency and Percentage of Male and Female proportion that are allowed to Attend the Institutions and Specializations

No.	Group	Gender-prioritized				Non-gender-prioritized	Grand Total
		Male-prioritized	Female-prioritized	Equal proportion of male and female	Total		
1.	a	37 43.5%	2 2.4%	11 12.9%	50 58.8%	35 41.2%	85 100%
2.	b	2 7.4%	-	-	-	25 92.6%	27 100%
3.	c	-	-	-	-	13 100%	13 100%

In group (a), 50 (58.8%) institutions are gender-prioritized and 35 (41.2%) of these are non-gender-prioritized. 37 institutions that amount to 43.5% are male-prioritized, 2 (2.4%) institutions are female-prioritized. In 11 (12.9%) institutions, male and female proportions are equal. In group (b), there are 27 specialized subjects and out of 27, 2 (7.4%) subjects are male-prioritized. The rest 25 (92.6%) subjects are non-gender-prioritized. Group (c) is also non-gender-prioritized.

Data Interpretation

According to Tables 1 and 2, group (a): Institutions are more Gender-prioritized and this is because universities like University of Dental Medicine Yangon, University of Dental Medicine Mandalay, University of Community Health Magway, Myanmar Aerospace Engineering University, Technological Universities, and Myanmar Maritime University need more male students. Presumably, it is because men have greater size and strength, and they are excellent at spatial and mathematical skills and logic. Moreover, as some jobs are adventurous, men who belong to such characteristics as non-emotional, objective, self-confident, and fearless are more suitable than women. As regards Female-prioritized institutions, only two universities: University of Nursing, Yangon and University of Nursing, Mandalay are investigated. It is assumed that nursing is suitable profession for women. This is because women are more

commonly associated with empathy and nurturing. Institutions that male and female proportions are equal are Universities of Medicine and Myanmar Traditional Medicine. Although these universities allowed equal amount of students' number, women's marks are higher than men's. Therefore, there is no gender equity for women in this aspect. In the case of occupational opportunities, women cannot go to remote areas and women could face difficulties because it would not be safe for them. 2 out of 27 specialized subjects are Male-prioritized. They are sport and Geology. Men are more interested in playing sport and it shows the improvement of their masculinity. Moreover, in some remote areas, it is still assumed that it is not suitable for a woman who is playing sport by moving her hands and legs in the sight of the public. Furthermore, it is difficult to be a woman geologist and men are more suitable for this type of job. The characteristics of these jobs are suitable for men. Therefore, in education policy, these two subjects are male-prioritized. The rest 25 are Non-gender-prioritized and Group (c) is also non-gender-prioritized. So, there is no gender difference in group (c). Therefore, there is gender equality to some extent. Data from interviewing 10 female students are also interpreted.

The first student replied that she applied University of Medicine as her first priority. However, she did not get a chance to join her selected university because her marks are less than the specified marks. She is now attending Sagaing University of Education because her mother is a teacher and her father said that being a teacher is the most suitable job for a girl. As she is a submissive child, she agreed with her parents. She is not very satisfied and happy because she can attend other institutions such as Government Technological Universities. However, she is trying to be a good student now.

The second student applied Mandalay Technological University and she also hasn't got a chance to attend that university because her marks are less than the specified marks of Mandalay Technological University. However, male students who have got marks less than her can apply and have chance to attend that university. Although she wanted to attend University of Economics, her parents thought that she should be a university teacher. That is why she attended Mandalay University and specialized in English. She is not very satisfied and happy at first, but now she is trying as much as she can to be an outstanding student. She cannot resist her parents' wish as she is a submissive daughter.

For the third student, she could have enough marks to join Government Technological University. However, her elder sister who had attended this university hasn't got her job yet and

so her parents did not allow her to attend that university. According to her parents' wish, she went to Sagaing University of Education. She did not have her own ambition. She is non-ambitious and she possess passive behavior. As an obedient child, she agreed with her parents' wish.

The fourth student has got a chance to attend University of Pharmacy, and University of Medical Technology, and University of Dental Medicine. If she were a boy, she could attend the University of Medicine. However, her mother is a teacher from Government Technological University, Taunggyi and in order to live with her mother and to lessen the expenses of attending a university, she had to attend GTU, Taunggyi. She was not very happy at that moment. However, she agreed with her mother because she is the eldest daughter of her family. She is intuitive about mother's feeling. She is used to pay heed to her mother's advice. She considered her mother's desire first. Moreover, she has strong attachment to her mother.

The fifth student is attending at University of Technology (Yadanabon Cybercity) because this university is not very far from her native town, Mandalay. According to her marks, she could attend University of Dental Medicine. However, she did not apply it because she had lack of confidence to stay away from her family. She thinks she needs security from her parents and she is non-self-confident, fearful and anxious to go away from home. She is excitable and subjective, too. She is happy and satisfied to attend that university.

Although the sixth student could have a chance to attend other institutions except Universities of Medicine and Technological Universities, she went to Mandalay University, Centre of Excellence and specialized in Political Science because her parents passed away, she had to live with her aunts and her family is not rich enough to send her to other institutions. As a COE student, she is provided with some facilities. Although she was not very interested in Political Science, she applied it as the third priority. She did not have an ambition to be a politician. In fact, she was interested in English. She could attend English specialization at Mandalay COE but she had not applied it because she thought there were many clever students at English specialization and it would be very competitive in the class. Therefore, she was afraid that she could not get high grade. She is subjective, non-competitive and non-self-confident.

Although the seventh student got the permission to attend the University of Economics, she enrolled the University of Distance Education in order to help her parents' business. She is satisfied and happy at the university she is attending. She thinks that women do not need to be

well-educated and getting a degree from a university is enough for her. She is non-ambitious in education.

Next student's first priority was University of Medicine and she got her chance to attend this university. The only thing she knew was it is good to be a doctor and she was guided by parents to do so since she was young. She cannot resist her parents. She is submissive. She was not happy all the time. Sometimes, she felt tired and disappointed when she was overloaded with her studies. However, she gets used to it now.

The ninth student passed her matriculation examination together with her younger brother. Although she could not attend Medicinal Universities and Technological Universities, she could attend other institutions. However, she had to join University of Distance Education as her little brother joined Government Technological Universities. She is not very happy to attend this university. She considered her brother's desire first.

The last one applied University of Dental Medicine as her first priority. However, she did not get a chance to join this university because her marks are less than the specified marks. She is now attending University of Community Health because her teachers urge her to attend this university. She is satisfied but not very happy in attending this university. According to the interview data, women are not decision makers and they consider other people's desire first.

Findings and Discussion

This research studies gender concepts of University Entrance System. Firstly, Guidebook for University Entrance published by Ministry of Education (2018) is analyzed. In the guidebook, three groups are classified: (a) 85 institutions, (b) 27 specialized subjects in Arts and Science Universities and (c) other universities. When this book is analyzed, it is found that some institutions are gender-prioritized and some are non-gender-prioritized in their entrance system. As a result, in group (a), 50 (58.8%) institutions are gender-prioritized and 35 (41.2%) of these are non-gender-prioritized. Gender-prioritized Institutions are also divided into three main categories: Male-prioritized institutions, Female-prioritized institutions and other institutions that male and female proportions are equal. 37 institutions that amount to 43.5% are male-prioritized, 2 (2.4%) institutions are female-prioritized.

In 11 (12.9%) institutions, male and female proportions are equal. However, women's marks are higher than men's marks. Therefore, it is said that there is no gender equity in this

aspect of university entrance system. There are 27 specialized subjects in Arts and Science Universities and out of 27, 2 (7.4%) subjects are male-prioritized. The rest 25 (92.6%) subjects are non-gender-prioritized. Other universities such as Yangon University, Mandalay University, Yangon University of Foreign Languages, Mandalay University of Foreign Languages are also non-gender-prioritized.

On the whole, 37 institutions and 2 specialized subjects in Arts and Science Universities are male-prioritized because jobs related to these institutions and subjects need skills that are associated with men. Men have greater size and strength, and they are excellent at spatial and mathematical skills and logic. Moreover, as some jobs are adventurous, men who belong to such characteristics as non-emotional, objective, self-confident, and fearless have more occupational opportunities than women. As a result, it is found that females have less opportunity than males to join some professional institutions.

According to the results of interviewing ten female students, some students choose the universities they want to attend but for most of them, universities are chosen according to their parents' suggestions and desire. Therefore, parents have an influence on them in choosing the universities. Women are regarded as protectors of culture in Myanmar and some parents do not encourage their daughters to do adventurous jobs. Moreover, some daughters are dependent on their parents and they do not want to make their own decision. The impact of female role characteristics such as non-competitive and non-ambitious, submissive, excitable and anxious can also be found in this research. These characteristics are barriers in joining the professional institutions.

Although the enrollment of female students is higher than that of male students in higher education, women have less opportunity in attending professional institutions because of their marks, their parents and their characteristics. Women should be trained to be physically and mentally strong and to be decision makers since their childhood. It is necessary to engage women in more competitive environment and to possess more opportunities for better education.

Conclusion

The aim of this paper is to investigate gender concepts in University Entrance System of Myanmar. Nowadays, women have the chance to get education and the enrollment of women who are trying to get education is much more than that of men. It can be assumed that there is no

gender inequality for women in this aspect. However, in the entrance system of higher education, some professional institutions are male-prioritized. In order to join the professional institutions, women have to get higher marks than men. In addition, the number of vacant positions in these institutions is very limited. Even if women score the same marks as men, men have more opportunities to join. For these reasons, women cannot have equal rights in comparison with men in this aspect of Education Policy. Investigating the interview of 10 female students also shows that there is influence of parents in choosing the women's professional institutions. As women are fearful and submissive, they cannot join some institutions. The effect of women's role characteristics is found in this research. Therefore, women need to be trained to be competitive, ambitious, non-emotional, objective, self-confident, fearless and physically and mentally strong. Furthermore, women have fewer opportunities in getting decision-making positions. This is the tradition for Myanmar women. Therefore, women have less opportunity to possess relevant leadership and management skills and experience. If women have equal opportunities in having decision-making positions, the gender gap in these skills will be lessened. Women need to be trained in leadership and management skills to be the future leaders. Moreover, the National Strategic Plan for the Advancement of Women 2013-2022 (NSPAW) includes "Education and Training" as one of twelve priority areas. It covers the activities to strengthen systems, structures, and practices of ensuring access to quality formal and non-formal education for women and girls (Country Gender Profile: Republic of the Union of Myanmar, Final Report, December 2013). According to 2014 MPH (Myanmar Population and Housing Census), 51.78% of population are females. Therefore, people who make the policy should consider expanding the quotas for female enrollment in professional institutions. Moreover, education policy is needed to be revised in order to encourage female graduate into workforce. Government should cooperate with NGOs for women in order to remove gender differences in education. In the near future, it is hoped that women will be able to have more opportunities than before.

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Papers



Dr. Hsu Mon Kyi

Outcome-based Education System using Blockchain Technology

Outcome-based Education System using Blockchain Technology

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Abstract: Outcome-Based Education (OBE) is a student-centric teaching and learning methodology in which the course delivery, assessments are planned to achieve stated objectives and outcomes. Outcome-based education focuses on: (i) Student assessments are designed to measure the learners' achievement of the learning outcomes (ii) Backward design of curriculum where courses and learning experiences are designed to help learners to achieve the learning outcomes (iii) Constructive alignment of learning outcomes, curriculum, teaching and learning methods, and student assessments. In OBE system, the student evaluation result is decided by educational stakeholders. Thus, the important problem of traditional OBE system can be absent to evaluate the student learning, abilities and states by educational stakeholders. As a next problem, society is unable to effectively evaluate the teachers and students as well as student evaluation results. Moreover, traditional document records can be destroyed in the case of natural disasters or wars.

To fulfill those requirements, this paper designs a system, entitled "Outcome-based Education System using Blockchain Technology". The important concept of Blockchain technology is a combination of secured distributed ledger, cryptocurrency and smart contract system. Blockchain is a reliable mechanism, and the development of blockchain brings significant benefits to education including providing a secure data processing platform, cost-saving, immutable and enhancing trust and transparency. Therefore, blockchain technology is applied to the traditional OBE system for higher education. In this case, this research focuses on the university curriculum and student credit system specialized in computer science and technology as a case study. The intended outcomes of this system would be (i) ensure the secure, reliable and robustness services for credit transfer and industry relationship (ii) support unique standardization for student data between all institutions and universities linkage.

Keywords: OBE, blockchain, cryptocurrency, smart contract

Introduction

The blockchain is an emerging technology that provides significant opportunities to disrupt traditional products and services due to the distributed and decentralized in nature. The features such as the permanence of the blockchain record and the ability to run smart contract blockchain technology based products or services significantly different from previous internet-

[1]

based commercial developments and of particular interest to the education sector [12]. As part of the fourth industrial revolution since the invention of steam engine, electricity, and information technology, blockchain technology has been applied in many areas such as finance, judiciary, and commerce [1]. Nowadays, some universities and institutes have applied blockchain technology into education, and most of them use it to support academic degree management and summative evaluation for learning outcomes [1].

In recent years, with the development of network, digitalization and globalization of the learning environment, traditional educational institutions tend to lack the necessary means, resources and ability to verify learners' knowledge, skills and achievements in management, certification learners learning activities, processes and results, etc [2]. Traditional evaluation is also a problematic issue in the education system. Formative assessment has been advocated for a long time, and yet it is still not ripe because it is not easy to track every detail of teaching and learning. Applying blockchain can solve this challenge [1].

OBE based students' achievement system has two types of learning contexts. In the formal learning context, this includes learning contents and outcomes as well as students' achievements and academic certificates. Subsequently, in the informal learning context, information about research experience, skills, online learning experience as well as individual interests are included. These data can be safely stored and accessed on a blockchain network in appropriate ways [1].

Blockchain is a reliable mechanism, and the development of blockchain is applied in various societies because of decentralization and non-tampering. Overall, blockchain can be used to construct a balance to measure the learning process and outcomes. Theoretically, blockchain can solve the problems of information asymmetry and trust among strangers because of its decentralized distributed database which protects secure information. Each block contains the hash value of the previous block and ensures the traceability of data on the chain. Therefore, blockchain is the strong technical support for the ability of the student evaluation system. The main contributions of this paper are as follows: (i) Outcome-based Education (OBE) system is designed for degree achievement. (ii) Develop the design scheme for OBE system with blockchain technology.

[2]

Literature Review

In this section, we will review the blockchain technology is applied to education in many innovative ways for various purposes. Therefore, some of these few studies of the field are briefly summarized below.

One of the studies recommends based on the learning outcomes, a study in which educational-purpose blockchain technology is addressed used this technology and an automatic assessment software as a learning tool based on the university's graduation condition index and professional certification. In the evaluation of the students' achievement, the transformation towards the post-employment qualification evaluations is completed and the curriculum is continuously developed by sending a curriculum to evaluate the difficulties facing student success [2].

According to Nespor (2018), blockchain could undercut the educational institutions' central role as certification agents and provide students with more learning opportunities. Due to the high efficiency of blockchain, several applications could measure and evaluate the students' performance based on qualitative and quantitative parameters [5]. Moreover, Farah et al. (2018) built a system to trace the performance of students for their multi-learning activities [6]. Authors in Reference [9] introduced the Ubiquitous learning (U-learning) system, which uses the blockchain technology to provide students with anytime/anywhere collaborative learning environment with a high level of security. Thus, U-learning has an interactive multimedia system to encourage an efficient communication system among teachers and students.

Liu et al. (2018), which applied the blockchain technology to a link between educational institutions and employment enterprises for sharing all necessary information regarding recruitment and industry requirements [8]. Similarly, another example was illustrated by Zhao et al. (2019), where an application program was developed using blockchain to evaluate students' professional skills based on their academic achievements and performances, which then could be provided to any interested industry. This evaluation system has been designed to assess and analyze students' abilities based on the clustering algorithm within the blockchain [10].

To the best of our knowledge, the proposed design scheme for OBE system with blockchain is an appropriate technology for the measurement of the student capability evaluation effectively and efficiently.

Outcome-based Education (OBE) System using Blockchain Technology

Outcome-based Education

Outcome-based education (OBE) as “defining, organizing, focusing, and directing all aspects of a curriculum on the things we want all learners to demonstrate successfully when they complete the programme”. The objective of OBE teaching and learning is to shift the paradigm from a teacher-centered approach to a student-centered approach. That means, learning outcome statements are to reflect and express what students are expected to be able to do at the end of the learning period. Learning outcomes are commonly divided into different categories of outcomes such as discipline-specific outcomes that relate to the subject discipline and the knowledge and/or skills related to it; and generic (sometimes called transferable skills or lifelong learning skills) outcomes that none discipline-specific e.g. written, oral, problem- solving, information technology, and team working skills, etc. In this study, this paper focus on the university curriculum and student credit system specialized in computer science and technology. OBE is realized by the 9 requirements for computer science degree program reference on ACM/IEEE-CS 2013 Curricular Guidelines (ACM and IEEE-CS, 2013). Degree program requirements will be measured by several key point indicators (KPI). In this computer science degree program case study, the course “Operating System Concept” as one of the requirements courses for the graduation ability index. The detail requirements are shown in Figure 1.

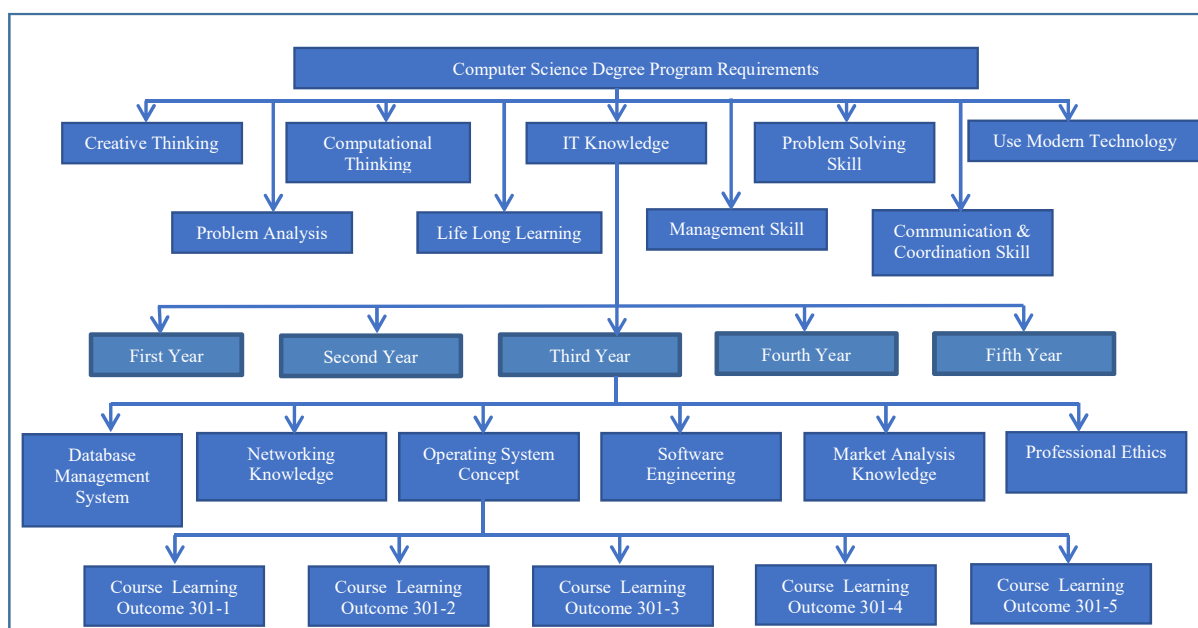


Figure 1. Computer Science Degree Program Requirements

Outcome-based education (OBE) is measured by Academic credit units (ACUS) for the graduate degree program requirement. In this case study, 128 credit units are required for an undergraduate computer science degree program. Each course has the 3 credit units for measurement of fulfilling the Course Learning Outcomes (CLOs) and assessment of the informal learning (knowledge/skill). To achieve the CLOs objective, 2 credit units are used for each course lectures and 1 credit unit for other assessments (i.e., classroom participation, Assignments/Tutorials, Practical and Projects/Team works). To fulfill the Course Learning Outcomes (CLOs) for each course, they are divided into corresponding credit point value according to their course requirements. The following table 1 is shown the evaluation type and credit point value for the “Operating System Concept Course” course code is 301 as an example. The table 2 is another assessment value for the “Operating System Concept Course”.

Table 1		
Credit Point Value for Operating System Concept Course		
Course Learning Outcomes (CLOs)	Credit Point Value (2- ACUs)	Evaluation Type
301-1 Examine major objectives, functions, features, and concepts of modern operating systems.	0.30	Exam test
		Discussion question
301-2 Analyze and design the applications to run in parallel either using process or thread models of different OS	0.50	Practical operation
		Exam test
		Analyzing the understanding of lecture from the interview question
301-3 Analyze the various device and resource management techniques for timesharing and distributed systems	0.40	Exam test
		Assignment test
		Discussion question
301-4 Investigate the need for concurrency within an operating system	0.55	Practical Operation
		Exam test
		Report the experimental result by applying the theory
301-5 Analyze the concept of virtualization concerning hardware and software.	0.25	Investigate the concept
		Implementation

Table 1 Credit Point Value for Operating System Concept Course

These formal student learning outcome achievement and other informal assessment data can be collected at the end of the academic year. Then, the achievement value together with the student ID, course code, year code, the credit point of the course and other information will be shaped like a record. And then, this data will be stored into a blockchain network. This data is

how to efficiently store the blockchain node and detail technique of blockchain are explained in the following section.

Table 2 Other Assessment value for Operating System Concept Course	
Assessment Type	Credit Point Value (1- ACUs)
Classroom Participation	0.10
Presentations/ Project(Team work)	0.45
Assignments	0.20
Tutorials	0.25

Table 2 Other Assessment value for Operating System Concept Course

Blockchain Technology

There are several questions about education system services and blockchain technology:

- Why should Blockchain technology use in the development of student evaluation?
- How to implement blockchain technology into the student evaluation system?

To answers the above questions, Blockchain technology should be introduced first. Blockchain technology is one of the megatrends for recent years. It is potentially a revolutionary means of secure and transparent data sharing and processing in a wide variety of sectors. The blockchain is an effective and efficient technology for the implementation of OBE with the help of its features like transparency, immutability and distributed way of storing the student evaluation records. The following sections will explain the blockchain, distributed ledger and a consensus mechanism in detail.

A. Blockchain

Some researchers said that blockchain is an unhackable technology because of the concepts of distributed ledger, smart contract system, and cryptocurrency. Blockchain technology would appropriate to apply for trusted data processing between various types of users and stakeholders. Blockchain construct as a linked chain of blocks in which a group of validated transactions has hashed. First, those transactions have converted into a block by calculating with hash functions. Then it produces a unique hash code of that block. The block will link to the existing blockchain of the system.

A transaction of a block has calculated a unique hash code. A block in the blockchain has the read-only privilege. Nobody can modify any block of the blockchain. If someone tries to modify the block, the hash code will be changed. This block will be discarded automatically

from the blockchain link. Standard cryptographic algorithms are applying as hash functions in blockchain technology.

B. Distributed Secured Ledger System

The blockchain distributes to the nodes of a dedicated network that is either a distributed network or a peer-to-peer network. The users can access the blocks from the blockchain for additional processes. They can create a new block of the transaction then it links to the blockchain. That is called the distributed and secured ledger system.

In the blockchain network, some users have the authority to validate and confirm whether transactions in the block are corrected or not. Then they proved it as an auditing process. A new block creates after auditing of the previous block. A new block links into existing blockchain and then distributes it to others. As a consequence, the person who proved the blocks of blockchain can reward for their proof work like consultant fees. Therefore, blockchain technology should apply for proof of work and proof of authority. For that reason, blockchain technology appropriate to apply for education services such as proof of student evaluation records, student certificate, and transcripts need to prove whether it is confirmed.

C. Consensus Mechanism

The consensus mechanism is the core of the blockchain, which is related to the normal operation of the blockchain. The so-called consensus mechanism is the algorithm that all nodes reach consensus on transactions in a period of time [11]. The most commonly used consensus mechanisms are Proof of Work-PoW, POS Proof of Stake, Practical Byzantine Fault Tolerance [10].

Design Scheme of Outcome-based Education System based on Blockchain

The proposed system uses a decentralized and distributed peer to peer (P2P) network where the student data is stored in the form of transaction blocks. These blocks are connected to one another forming a chain of transactions. The “transaction” is the record of the students’ score and evaluate the students’ ability in the blockchain structure will be distributed to every node in the network to ensure the operation process of the student ability evaluation result is open and transparent and cannot be modified with. The student ability evaluation record is stored to the blockchain as a "transaction" to enable stakeholders such as students, teachers, and schools.

[7]

Therefore, the students' information is queried at any time and in any place. Since all the nodes on the blockchain are interconnected, the data stored can be traced. At that time, the hash value in the block will change because of the existence of the hash pointer, each subsequent block hash will change, and it is easy to see whether block data is tampered with by creating blocks. Therefore, the assessment record of students to achieve value is stored in the blockchain, which can form a social consensus.

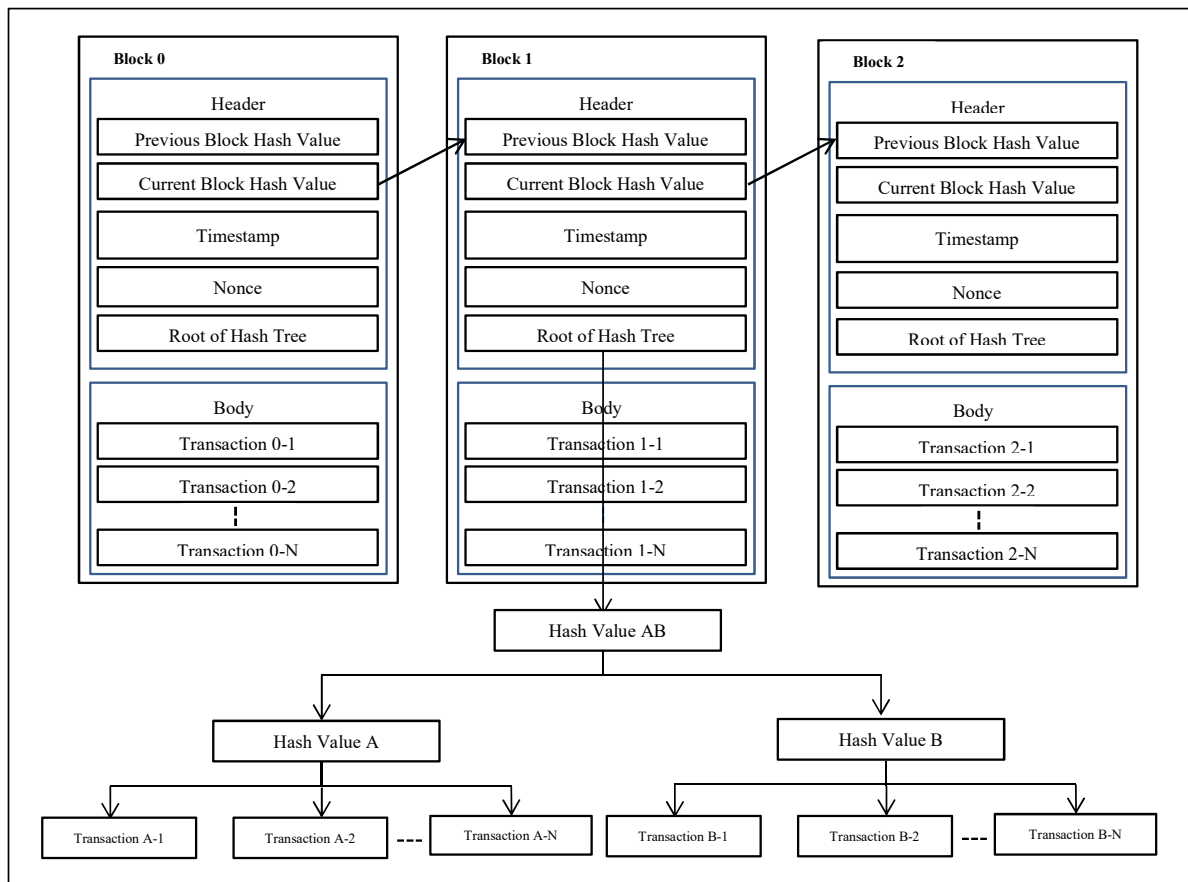


Figure 2. Blockchain Structure

In this section, the design of the proposed open framework describes. There are four layers in the framework:

A. Development Platform Layers for Education Applications Services

This layer supports application developers for the standard developing platform of front end and back end applications. This layer provides front-end services such as UI template,

[8]

application template and data template for end users. The users can directly interact at this layer and necessary information related to student evaluation results is accessed from the application interface. Moreover, the ability of student records is submitted to the node as a “transaction” and then transmitted to the blockchain.

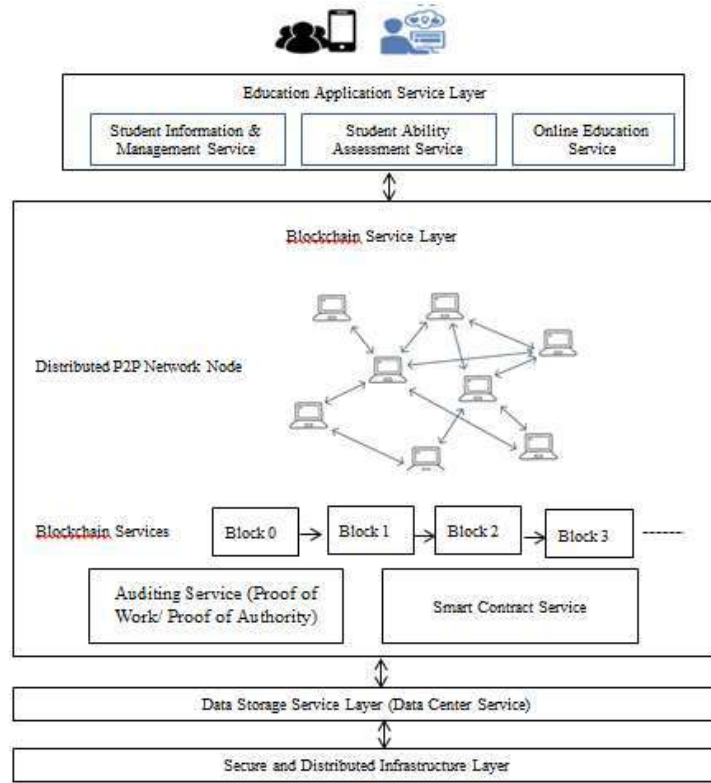


Figure 3. Proposed System Framework for OBE using Blockchain Technology

B. Blockchain Technology Services Layer

This layer is the most important layer of the proposed framework. Layer 2 is a supporting layer for blockchain technology and related services such as Blocker Service, Distributed Ledger Service, Smart Contract Service, and Auditing Service, (Proof of Authority) as following:

Blocker Service

The blocker service generates the transaction using secured cryptographic algorithms and returns hash code for that transaction.

```

Algorithm Blocker (Blockchain, Block, Transaction)
{ hash-code= Encrypt(Transaction);
  Add(Block, hash-code, Blockchain);
}
Algorithm Encrypt(Transaction)
{ hash-code= Cryptographic_fun(Transaction);
  return hash-code;
}

```

Distributed Ledger Service

The blockchain will be distributed to the appropriate node of a dedicated network is a peer-to-peer network. P2P network nodes are used for receiving encapsulated "transactions" from the application layer, and verifying the "transactions" for “proof of work” and “proof of authority”. Then, a new block has been created and links it into blockchain again. Blockchain is used to store all "transactions", that is student capability evaluation results. Data in the blockchain is distributed across a P2P network. To enhance the reliability of the student evaluation system, the node of the system includes relevant education departments. All of their relevant departments can check the information released by the system at any time, and enhance the reliability and high trust of the student evaluation system.

```
Algorithm
Distributed_Ledger(blockchain,transaction)
{
    new-block= Proof_of_Work(transaction);
    Blocker(blockchain,new-block,transaction);
    return blockchain;
}
```

Distributed Ledger Algorithm

Auditing Services (Proof of Work/Proof of Authority)

The main tasks of these services are auditing and confirming for a given transaction. In order to do these services, Educational assessment rules play a vital role in transaction confirmation.

Smart Contract Service

The most important service of blockchain technology is the Smart Contract service. Universities can use this technology to hand over certificates, transcripts, and degrees once the student successfully clears the exams on the parameter set by the universities and industry linkage.

C. Data Storage Service Layer (Data Center Service)

This layer is also a physical layer to support data center service. In this layer, all data systems are storing into the data storage layer as virtual storage or cache storage. Some data are physically stored as well.

[10]

D. Secure and Distributed Infrastructure Layer

This layer is the underlying layer of secure communication for the blockchain network. The special-purpose protocols are supporting to communication channel and blockchain network.

The intended outcomes of this system would be (i) ensure the secure, reliable and robustness services for credit transfer and industry relationship (ii) support unique standardization for student data between all institutions and universities linkage.

Conclusion

In this paper, a system is designed, entitled “Outcome-based Education System using Blockchain Technology”. The university curriculum and student credit system specialized in computer science and technology as a case study to evaluate the ability of the student. The paper proposed a design scheme of the Outcome-based Education System applying blockchain technology including open framework design, network node construction and the related process of student evaluation record data is stored in form of blocks applying blockchain technology. This paper is beneficial research on blockchain technology in education services. However, blockchain technology still needs further research and implement in the field of education and other e-government services.

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Case Studies of Change Management Strategies in Higher Education: Responses to Increasing ASEAN integration

Case studies of Change Management Strategies in Higher Education: Responses to Increasing ASEAN Integration

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Abstract: Increasing ASEAN integration posits demands and challenges to education systems of the region which include ASEAN 28 Agenda Points on Education which are captured in the four main priority areas in the 5-Year Work Plan on Education (2011-2015). These challenges and demands have significant implications for basic to higher education and impact upon issues and concerns on curriculum and instructions as well as system-wide policy and planning.

This research aims to document and analyze the change management strategies in higher education implemented by selected Ministries of Education (MOEs) in response to the demands and challenges of increasing ASEAN regional integration. Through a descriptive case study method with the Change Management Framework of John Kotter (1996) as lens, this research describes relevant responses in Higher Education by seven MOEs to increasing ASEAN regional integration. The MOEs in Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Philippines and Thailand signify their commitment as shown in various educational reforms and conscious effort to address the challenges and contextual realities to respond to increasing ASEAN regional integration. The case studies were developed through the conduct of interviews among key MOE officials in 2016, supplemented by publicly available information on country statistics pertinent to education and ASEAN integration. Country data were likewise validated during a regional workshop conducted in the Philippines in June 2018. Conclusively, the implementation of change management strategies by the MOEs in higher education shows that each member country takes into consideration (1) its unique and individual context; (2) the nature, extent of readiness, and sustainability of educational reforms to address the ASEAN integration; and (3) each member's pacing, funding, and readiness. The findings from the seven country case studies provide valuable inputs to the development of initiatives to realize ASEAN integration, through education, which cuts across economic, political, and socio-cultural pillars and promotes regional cooperation and collaboration.

Keywords: ASEAN Integration, Higher Education, Management Strategies

Background and Rationale

The ASEAN Region was formed in August 8, 1967 in Bangkok, Thailand. It was originally composed of 5 countries: Indonesia, Malaysia, Philippines, Singapore, and Thailand. The remaining five countries in the region joined the association in subsequent decades. Brunei Darussalam joined on January 8, 1984, Vietnam on July 28, 1995, Laos and Myanmar on July 23, 1997, and Cambodia on April 30, 1999. The region was previously called ASEAN+CLMV (CLMV stands for the newer member countries Cambodia, Lao People's Democratic Republic, Myanmar and Vietnam). Timor Leste applied to join ASEAN in 2011 and currently has observer status while assessment of its application is ongoing (Kapur, 2016). As one community, the ASEAN aims to integrate the various processes of each member country by developing quality standards and frameworks that guide the nations in creating their programs and services. Amidst the regional diversity and disparity in growth and development, the dream of ASEAN Integration, "One Vision, One Identity, One Community" (Chao, Jr., 2014; Zeng, Q., Adam, J. & Gibbs, A., 2013; Hawkins, 2012; Yepes, 2006), is envisioned to be sustained.

Demands and challenges to the education systems of the region are evident in the ASEAN 28 Agenda Points on Education which are captured in the four main priority areas in the 5-Year Work Plan on Education (2011-2015), namely: (1) Promoting ASEAN Awareness; (2a) Increasing Access to Quality Primary and Secondary Education; (2b) Increasing the Quality of Education – Performance Standards, Lifelong Learning and Professional Development; (3) Cross-border Mobility and Internationalization of Education; and (4) Support to Other Sectoral Bodies with an Interest in Education (ASEAN Secretariat, 2012). These entail a more serious investment in teaching and learning in a multi-cultural society, language and socio-cultural issues, citizenship education, and the common approaches guiding regional education initiatives in the area. More importantly, successful ASEAN integration also challenges the education systems in the region to provide individuals with requisite skills needed in a changing labor market (UNESCO-UNEVOC, 2014).

This paper documents and analyzes the conscious effort of the Ministry of Education (MOE) of Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Philippines and Thailand in Higher

Education to address the challenges and contextual realities to respond to increasing ASEAN regional integration.

Conceptual Framework

This research adopts John Kotter's (1996) Change Management Model, with 8-steps clustered under overarching categories: (1) *Climate for change* focuses on the opportunities that ensue from increasing ASEAN regional integration; the strategies identified by the MOEs to hurdle the issues and concerns within their context; and specifies the creation of a vision and strategies for the implementation of the identified vision. (2) *Engaging and enabling the organization* likewise identifies three steps: communicate for buy in, empower action, and create short term wins. In this cluster the possible vehicle in communicating the vision, strategies to empower the stakeholders, and plans for improvements or wins for increasing ASEAN regional integration serve as the foci. The final cluster, (3) *implementing and sustaining change* involves two steps: don't let up and make it stick. This refers to the mechanism implemented by the MOEs in ensuring the sustainability of strategies for increasing ASEAN regional integration. Through a case study method, the change management strategies of MOEs in higher education in each country in this study were analyzed using the above overarching categories as lens.

Brunei Darussalam

The changes employed by Brunei Darussalam for ASEAN Integration was inspired by their national Vision – Wawasan – 2035 which coheres with the priority areas identified by the ASEAN. The *first* change strategy employs prioritization of the national context as a response to ASEAN Integration. Thus, *responding to their national vision creates a climate for change*. What the country wants for their learners was made clear and, to a certain extent, they have also questioned the existing system before the change. They identified the kind of learners/youth that they want to develop, as well as the subsequent new educational structure and curriculum. As far as *engaging and enabling the organization* is concerned, the change strategy is all about enhancing student mobility. Enabling the students to become mobile and gain exposure in the international arena is also important for Brunei learners to increase competitiveness in the national, regional, and global contexts. External networks are given importance in Brunei Darussalam. This is indicated in their

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Discovery Year Program, which provides a venue for the students to build linkages with other universities and gain awareness on the cultures and practices of different countries. This also increases the mobility rate of the students from Brunei, which has addressed one of the goals in the ASEAN 5-year Work Plan in Education (*Cross-border Mobility and Internationalization of Education*). Through these activities, Brunei has created a game plan that makes use of the strategies as a guide for the whole Ministry as it implements the programs and while it involves internal and external stakeholders. This provides a collaborative effort in achieving the goals pertinent to the ASEAN integration. Another identified strategy has to do with minimizing the language barrier. English is the language needed to thrive in the international arena, hence, programs that promote continuous improvement in learning and using the English language are deemed important. The identification of the necessary changes and the mechanism needed to *implement, sustain, and nurture these changes* call for the development of measures for actual change implementation and follow through. This has to do with the presence of focal offices to set the KPIs, monitor and evaluate the implemented changes, and take the necessary steps in case further changes are needed or if refinement of the existing mechanism needs to be done. This also includes the creation of a credible Quality Assurance and Assessment System. Activities also include the regular monitoring and evaluation of, and regular consultation with, the industries and pertinent stakeholders. As mentioned by a key informant, Brunei, in the aspect of ASEAN Integration, is “progressing” not by dramatic leaps and bounds but by small incremental changes. The policies, strategies, programs, and activities that they have are therefore open and subject to improvements or changes in order to continuously respond to the demands and challenges of increasing ASEAN integration.

Cambodia

The Ministry of Education Youth and Sport (MoEYS) have created a *climate for change* by strategizing on the change that they want to implement through the latest Education Strategic Plan known as ESP 2014-2018. The stipulated strategic points are deemed appropriate as a response by the MoEYS to the Royal Government of Cambodia’s Vision 2030. The vision of building a sustainable, competitive, and harmonious economy was concretized in the National Strategic Development Plan (NSDP) 2014-2018, with a focus on human resource development so that Cambodia may achieve its vision and meet the immediate and long-term needs as far as economic development and competitiveness in the ASEAN region are concerned. Hence, the MoEYS

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responses are not only geared to meet the challenges of the Royal Government of Cambodia but are also created to meet the demands of increasing ASEAN integration. In *engaging and enabling the organization*, higher education, efforts are focused on curriculum diversification and aligning priority programs with ASEAN standards, specifically in the areas of engineering, architecture, medicine, dentistry, nursing, accountancy, and tourism. As far as the ASEAN 5-Year Work Plan on Education Priority 3 (Cross-border Mobility and Internationalization of Education) is concerned, the participants to this study saw the opportunity to benchmark performance with that of other ASEAN member states like Singapore and Thailand, affirming that bilateral and multilateral agreements among ASEAN and European countries were designed to be benchmarked against each other on curriculum, teacher education, and STEM. Furthermore, Teter and Dhirathiti (2016) found that in Cambodia, there is evidence that some leading private and public institutions have developed and revised their curriculum and degree structure to accommodate international mobility programs. The majority of these programs appear to be with institutions outside the ASEAN region (e.g., France, Australia, etc.). They reported that the Royal University of Law and Economics in Phnom Penh has made use of the availability of funding and resources from higher education institutions in Paris, Nantes and Lyon to infuse resources into such disciplines as law and economics. Student mobility is integrated into the double degree programs under bilateral agreements, which provide a cost-neutral means to increase the number of both inbound and outbound students. Hence, a single higher education institution in Cambodia could send up to 100 students abroad through various mobility schemes (e.g., Erasmus Mundus, foreign governments' scholarship programs, and programs by the Ministry of Education). In *sustaining and nurturing change*, MoEYS Cambodia monitors progress at every level as tasks are being accomplished. The key performance indicators were set to serve as a guide in determining the extent at which every goal is achieved. ASEAN integration leads to the opening of opportunities for collaboration between institutions, joint research, and quality standard setting. The enhancement of curriculum, diversification of priority programs, instructional design, and even quality assurance are to be developed based on ASEAN standards. While the change is not about doing things in fundamentally different ways or about doing fundamentally different things (Nadler et. al., 1995 as cited in Hayes, 2010), the MoEYS of Cambodia has acted to meet both national development goals and those related to increasing ASEAN integration.

Indonesia

In providing a *Climate for Change*, the Ministry of Research, Technology and Higher Education (MORTHE) considers the development of human resource without neglecting the national culture and identity as cooperation has to start from within before it extends to a larger context like the ASEAN region. The MORTHE considered the different developments and initiatives brought by the challenges of globalization and the increasing levels of integration in the ASEAN region, especially in terms of economics, political security, and social and cultural integration. It ascertained that through the overall National and Strategic Plans, concerns for developing locally and internationally competitive human resource are addressed. Hence, access to quality education and inclusion of 21st century skills are stipulated in the plans in order to address human resource demands. The challenge is to consolidate the gains and develop an education system that will better support the needs of the rapidly emerging economy in its transition towards high-income status (OECD/ADB, 2015). Indonesia's Higher education faces persistent challenges as the following concerns continue to demand attention and action: quality of instruction and graduates, university rankings, research and development, funds allocation and appropriation, and others. The Ministry of Research, Technology and Higher Education (MORTHE) *engages and enables* higher education institutions through the internationalization of curriculum, international benchmarking, and international accreditation. Aligned with the ASEAN WPE (2012) Priority 3 (Cross-border Mobility and Internationalization of Education), Indonesia, as reported by Teter and Dhirathiti (2016), is one among three ASEAN member states, together with Lao PDR and the Philippines, that ratified the 1983 Regional Convention on the Recognition of Studies, Diplomas and Degrees in Higher Education in Asia and the Pacific. Indonesia, Malaysia and Thailand were the first to implement the ASEAN International Mobility for Students (AIMS) Programme from 2010 to 2012. AIMS was developed by SEAMEO RIHED and is considered one of the largest and best-known programs promoting mobility within the ASEAN region. Indonesia also actively promoted mobility by setting up the Ministry of Higher Education and Research as the main national agency promoting both internationalization and mobility programs. In accordance with its internationalization policy, the Indonesian government engages with the ASEAN University Network and SEAMEO RIHED. These initiatives are meant to raise the awareness of Indonesian students about mobility opportunities within the ASEAN region. Indonesia's MoEC has made significant gains through time, but a greater sense of improvement is desired. To *implement*

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and sustain change, varied forms of assessment, monitoring, and evaluation processes were put in place. Small gains were targeted to improve educational outcomes. In this context, incremental changes for improvement were introduced. Continuous improvement, fine-tuning, and adaptation to the challenges within and outside Indonesia have always been part of the country's strategy. The context of Indonesia shows that in responding to the demands of increasing ASEAN integration, change process along with its programs and strategies should not only look outside but must also strengthen social connections from within. While students are being prepared to be competitive in the region, the need to have a strong sense of identity must be built as well.

Lao PDR

The Education and Sports Development Plan of the Ministry of Lao PDR shows that their national context, which is based on their national goals, served as the trigger for the change strategies that were undertaken to improve the educational provision. They have created a *climate for change* addressing their national context and leading towards the creation of a clear vision (Stanley, 2006; Strategy&, 2004; Kotter, 1996)). The six goals of Education for All (EFA) and the Millennium Development Goals 2 and 3 became the foundation of the Education Sector Development Plan of the Ministry of Lao PDR. Since the national goals are aligned with the priority areas under the ASEAN integration, as stated in the ASEAN WPE, the strategies have become Lao PDR Ministry of Education and Sport (MoES') response to increasing ASEAN integration. Given the ethnic diversity in Lao PDR, this *climate for change* was created to target the community. A unique process in Lao PDR is the involvement of the community through the Village Education Development Committee. The MoES engages and enables higher education through internationalization efforts evident in the country's efforts to network with other HEIs in other ASEAN nations through research collaborations, work on quality assurance and joint degree programs, mutual recognition of courses, credit transfer, and student mobility through scholarship. When it comes to *implementing and sustaining change*, it has been pointed out by the research participants that Lao PDR MoES needs to improve its governance and management, specifically in monitoring what has been planned and implemented by looking at given indicators pertinent to the targets for improving quality of education and access to it. These indicators serve as evidence designating the manner of implementing and sustaining change. The spiral way of progressing

change through constant evaluation, monitoring and redesigning change (Scott, 2003) is a crucial process that may be needed to make Lao PDR's approaches relevant to increasing ASEAN integration.

Malaysia

The Ministry of Education Malaysia provided a *climate for change* when triggered by different international developments and thus was led to the understanding of their own context vis-à-vis the performance of other countries' educational system through the aid of the panel of experts who also led them to establish a clear vision for the educational system and the learners. The Ministry of Education Malaysia *engages and enables* itself by empowering its stakeholders. This is done by establishing a clear vision and aspiration for individual students (Student Aspirations) and the education system (System Aspirations) as a whole over the next 13 years, and also by engaging the public's interest on Malaysia's Educational Agenda through the National Dialogue Session. The MOE engages students, teachers, school leaders, ministry officials, parents, local and international experts, government and international agencies, and citizens in making changes in the educational system. The engagement created an open line of communication and established consensus on the proposed reforms in education. This is reflective of the second strategy of Scott (2003), which is about getting the perspectives of staff about the ongoing changes. This enables the management to gain insights on the existing gaps and view the change from the perspectives of the stakeholders. It also enabled Malaysia to reach greater heights in providing accessible quality education for its citizens. Leadership direction and ownership by stakeholders (Stanley, 2006; Strategy&, 2004; Kotter, 1996) facilitate successful change implementation and increase commitment to change. Moreover, through the Malaysia Education Blueprint (MEB), shifting to transform becomes a mechanism for change. In *sustaining and nurturing change*, two strategies are evident in MOE Malaysia. By keeping performance indicators monitored and evaluated, progress on the identified changes, programs and practices can be monitored, sustained or further changed. Through set KPIs, progress can be tracked through monitoring and evaluation. Another strategy is on exerting strong leadership and commitment in consolidating gains and producing more change. Along with KPIs, a focal office or unit is needed to lead the implementation of the desired change, and to monitor and evaluate the implementation. There has to be leaders at different levels or offices that coordinate the implementation of the planned changes. Over and

above all these, getting support from Ministry officials is very crucial in implementing the change or reforms in the educational system.

Philippines

The change strategies for education of the three Agencies namely the Department of Education (DepEd), the Technical Education and Skills Development Authority (TESDA), and the Commission of Higher Education (CHED) focus on fostering the competitive advantage of Filipino students to meet the demands of increasing ASEAN regional integration so that they are better prepared and equipped for. They clearly demonstrate *creating the climate for change by advocating for the legislation of key education reforms*. In doing so, the educational reforms are protected from being discontinued by future leaders who will not support the said reforms. This has also helped the different education sectors in securing needed financial support from the government. In terms of *engaging and enabling* higher education, initiatives pertinent to the ASEAN includes strengthening internationalization policy which aims to improve the quality of education such that it translates into the development of a competitive human resource capital able to adapt to shifting demands in the regional and global environment to support and sustain the country's economic growth. Over the long term, CHED hopes to build and strengthen a knowledge-based society by continuously upgrading the quality of Philippine higher education institutions (HEIs) through academic and knowledge transfer outcomes, resulting in improved quality assurance, accreditation, and standards comparable internationally. CHED continues to strive towards strengthening the ASEAN Identity and Community and shaping the next generation of global citizens (CHED IAS, 2018). In line with CHED's efforts to contribute to the ASEAN higher education agenda and make sure the Philippine higher education sector's interests are well-represented in regional dialogue platforms, the country maintains its active presence in other initiatives such as: (1) ASEAN Citation Index (ACI) – a regional initiative dedicated to the creation of a database to link national databases of and compile journals from ASEAN countries, with the goal of improving the overall research quality and academic visibility of ASEAN; and (2) ASEAN Cyber University Project (ACU Project) – dedicated towards building the e-learning capacity of ASEAN higher education institutions and enhancing the quality of higher education in the region through e-learning. In terms of student mobility programs, the Philippines, became an official participant in the ASEAN International Mobility for Students (AIMS) Program in 2013 and began

sending and receiving students in 2014 (CHED IAS, 2018). To *sustain and nurture change*, the three Ministries have been pushing for development within the international context while continuously improving and aligning programs and initiatives that were implemented in line with the change in the educational system. Implementing the reform and conducting activities and programs have been happening one after another amid tight schedules.

Thailand

Thailand has consciously and purposively initiated varied educational reforms to prepare for increasing ASEAN regional Integration. The change management process as evident in the *climate for change* is triggered by the realization that the Thai people must be developed to effectively participate in the ASEAN Economic Community. The development of the ASEAN Education Strategic Plan of the Ministry of Education (2015-2019) depicts the response of Thailand to the challenges of the increasing ASEAN regional integration. The Ministry of Education (MOE), Thailand has *enabled and engaged* its organization by developing relevant mechanisms to facilitate the mobility and exchange of students. Teter and Dhirathiti (2016) recognized that Thailand has an integrated system where a progressive pathway of students moving from secondary to TVET or higher education was clearly mapped and articulated. Increasing the mobility of students, teachers, and workers is one of the primary moves that MOE, Thailand did to engage the stakeholders to participate in the ASEAN integration. MOE, Thailand has already set up various MOUs with other ASEAN universities to facilitate mobility among their students. They have also adapted the “Connecting Classrooms” concept from the British Council, where students get the chance to meet students from other countries using video conferencing. Key informants also shared that Thailand has strengthened partnerships with the countries near the border and have created MOUs to facilitate exchange programs. One recent education trend in Thailand is the development of hybrid schools offering both the Thai curriculum and an international curriculum. These schools cater to students who want to have internationally recognized education while continuing their schooling in a Thai environment. It is this increasing popularity of international schools that has encouraged Thailand’s leaders to promote the country as a hub for international education in the ASEAN region (Maxwell, 2015). Moreover, immediate measures along with the responsible units and offices in the Ministry are defined in the strategic plan. An example of "immediate measures" is the promotion of the ‘Young ASEAN Ambassadors’

to disseminate information about the three pillars of the ASEAN community while building friendly relations among youth in the community. Activities include the ASEAN Youth Junior and the International ASEAN Youth Camp which are meant to promote awareness about ASEAN integration. After years of implementation in Thailand, the camp now includes students from other ASEAN member countries. In terms of *sustaining and nurturing change*, the Thai MOE has instituted measures of success for monitoring and evaluation and introduced a decentralized mechanism for the implementation and monitoring of programs and strategies. The different offices in the MOE have been working together from conceptualization to implementation of changes, and through monitoring and evaluation that could provide inputs to further changes. A salient feature in the case of Thailand is the leadership of the MOE as change agents in developing a strategic plan that appropriately integrates policies, programs, and activities pertinent to increasing ASEAN regional integration.

Concluding Remarks

Despite agreed regional guidelines, benchmarks, and frameworks to meet the challenges that the ASEAN MOEs have experienced, the ASEAN countries were still able to push through with their respective plans and programs to meet the standards of the region. Implementation of change management strategies for coping with increasing ASEAN integration among MOEs in ASEAN countries shows that each member country takes into consideration its unique and individual context. The desire of ASEAN member states to promote regional cooperation and collaboration facilitated the adoption of the requisites of the ASEAN integration based on each member's pacing, funding, and readiness. The change management strategies implemented by the MOEs indicate the nature, extent of readiness, and sustainability of educational reforms needed to address the ASEAN integration. However, varied socio-economic context may result in slower progress of the "low performing ASEAN countries," while other developing countries continue to progress. To strengthen the cooperation and collaboration within and among ASEAN member states and other countries like China, Zeng, Q., Adam, J. & Gibbs, A. (2013) proposed the creation of a higher education coalition similar to the Bologna Process. They argued that a more centralized higher education administration in the member nations could facilitate the creation of such a coalition. The Ministries of Education of member countries have strong policy implementation power since they decide on funding, performance assessment, enrolment planning, and educational policy

making. Thus, should a Bologna Process like coalition be established, respective governments could mandate its adoption and hasten the process. Yepes (2006) recognized the opportunities for international organizations involved in higher education to find synergies with regional networks and channels of collaboration.

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Papers



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Improving the University-Industry Linkage: a Lesson from Universities in UK for Vietnamese Higher Education Institutions

Improving the university-industry linkage: a lesson from universities in UK for Vietnamese higher education institutions

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Abstract: *The tertiary education system in Vietnam requires step change in the light of current challenges in the higher education sector on one hand and the fast increase on economic growth on the other. The necessity of innovation and reform is in various areas such as curriculum reform, accreditation, teacher quality and alternative ways of teaching. The goals of innovation and reform in these particular areas are to improve the competency and skills of graduates required by employers. To archive such goals, establishment of a strong linkages between universities and relevant industries are essential. Increasingly, Vietnamese universities are looking for opportunities in this field and share experiences with UK higher education institutions. This paper introduces a successful project with a number of UK universities with Vietnamese institutions to assess hurdles and opportunities between universities and industry in the two countries. The project was sponsored by the British Council Vietnam in collaboration with four universities in both North and South of Vietnam and two UK universities. The research team from both Vietnam and UK has participated in various workshops attended by Deans, academic members of staff, curriculum developing administrators. The project was to collect data and to interpret the qualitative information to compare the levels of linkages and comparative analysis between universities in both countries. From this analysis, the research team determined the drawbacks of Vietnamese universities in creating effective and mutual beneficial relationships with the industry comparing with UK higher education institutions and propose some solutions for improving the current situation.*

I. Introduction

Fast pace of technological innovation, the increasing demand for innovative ideas, transfer of expertise and technical-know-how to businesses, highlights the urgent need for effective

collaboration between the universities and industries in the 21st century. Previous studies highlight the crucial role which academic researchers play in connecting academic and technical knowledge to the industrial research and development (R&D) needs (Shea, Allen, Chevalier, & Roche, 2005; Tijssen & Lamers, 2017). Developing effective industry-university linkages face various challenges including lack of an adequate management and governance structure and framework between the universities, industries and other stakeholders (Intarakumnerd & Schiller, 2009; Tijssen & Lamers, 2017). Thus, it is important to address these barriers in the early formation phase of a partnership in order to maximise the mutual benefits in the long-term. Interaction enabled through proposed project will enable academic leaders from Vietnam and UK to discuss these challenges and devise a strategy.

Connections between universities in Hanoi and industry in activities of science and technology were studied by Pham Hong Trang (Trang, 2017). Regarding exchange of human resource, this activity is often implemented. The exchange human resource involves visiting foreign professors, sending students to foreign universities, employing students to practice and work at company, joint research team, establishing laboratory of industry at university. These activities are very popular at surveyed universities in Hanoi. The research shows that the collaboration in scientific and technological activities of the surveyed universities and domestic universities/institutes, foreign universities/institutes, domestic, and industry is quite tight by 70% supported ideas from the survey. For transfer of research products, it has been conducted with BK Holdings Co., Ltd., Ralaco, Co., Ltd., LILAMA Co., Ltd. In addition, the industry supported finance for research projects, equipment to university/institute. Technology development was also considered in the collaboration. The study shows that this activity is not much popular or very rare.

Nguyen Quynh Mai (Mai, 2014) evaluated linkages between universities in Ho Chi Minh areas and industries working in manufacture, service, and commerce field. The research investigated the linkages on the support of industry to university in education; help of university recruiting, educating, researching, and transferring technology to industry; and donation of equipment from industry to university. All the assessed linkages were shown at medium level. It also revealed that the benefit resulted from the collaboration is very high for both industry and university. The study concluded that relationship between experts, entrepreneurs are keys to encourage and strengthen the collaboration.

At Can Tho city, to prompt the research activities, transfer and application of research products, a center for application of scientific and technological innovation (TTUDCT) was established in 2013. The center is an effective connector to transfer knowledge and technology from university/institute to industry. There are there models have been applied successfully at the center (Ngon, 2018): (1) Collaboration to complete technology. The Center has collaborated with experts from universities/institutes to complete 12 technologies in industrial manufacture, agriculture, and social living, such as supply water treatment project, ION-O2 drinking water equipment, deposit treatment equipment, and smell treatment equipment. (2) Collaboration to apply researched technology. The center has worked with experts to make researched technology into application. For examples, a research named “Study for a method managing negative insects on the dragon fruit to improve quality” has been applied at Phong Dien district, Can Tho city. Some practical researches have been continued to support to implement stage under TTUDCT. (3) Collaboration between institute-university-expert. TTUDCT has been signed on the collaborative agreement with four institutes/universities, seven experts in order to boost research, application and transfer knowledge and technology in practice.

II. Research method

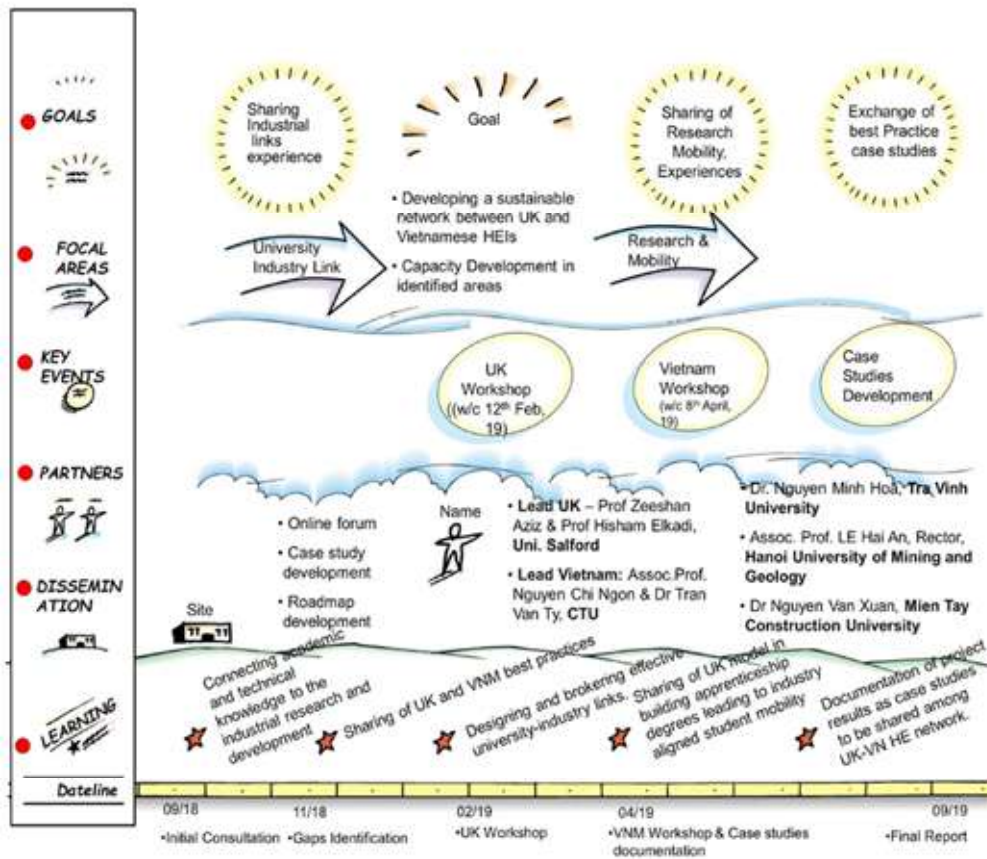
The research was implemented within a framework of a project sponsored by British Council and leaded by the University of Salford and Can Tho University, which aimed to enable sharing of best practices from across UK and development of case studies to facilitate wide sharing of practices across Vietnamese HEIs. With the financial support from British Council, faculty members from four different universities in Vietnam such as Can Tho University, Mien Tay Construction University, Tra Vinh University and Hanoi University of Mining and Geology have opportunities to

get experiences on linking the universities with



UK VIETNAM HIGHER EDUCATION PARTNERSHIP

Capacity Development and best practices sharing between involved UK and Vietnamese institutions in the areas of developing industry university linkages and researcher mobility



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Figure 1 Activities and objectives of the study

industry from the UK's universities such as Salford University, Manchester Metropolitan University and Cranfield University. Various models of facilitating university-industry partnership will be reviewed during workshops to be conducted in Vietnam and UK, involving collaborative research, technological support and funding and economic development (Tomas & Oein, 2014)). Project involved intense discussions during interactive workshops, to discuss Vietnamese challenges and how to adapt best practices within local operational context. This aimed to enable Vietnamese HEIs to create a R&D interface, develop supporting structures to enable knowledge transfer and research mobility (Figure 1).

This research focused on developing an interaction between participating Vietnamese and UK HEIs will help bridge the gap in building University-Industry partnerships by exploring the opportunities and addressing the key issues identified in the Vietnamese and UK context. As part of the proposed project, 2 workshops will be conducted in UK and Vietnam, allowing for sharing of best practices and suggesting ways forward to align global best practices to Vietnamese needs and operational context.

The project for the university-industry linkage is designed to identify the existing skills gaps and sharing of established UI models, with a focus on creating employment and regional mobility opportunities. In order to achieve the intended change, workshops in UK and Vietnam will be conducted to achieve following objectives; a) Developing baseline/skills gap identification and awareness of existing practices within Vietnamese HEIs; b) Sharing of best practices and developing a common vision for building effective UI partnerships; c) Developing a roadmap with tangible set of actions to achieve the set vision; and d) Production of case studies on the project deliverables/outputs for dissemination to HEIs in both countries.

This hinged on the theory of change which supports that effective collaboration through training/workshops are key requirements to improve capacity development through R&D, knowledge sharing. The main activities in this partnership include conduct of workshop and training, benefiting 60+ academic leaders from UK/Vietnamese universities. The output from the training and workshops will include an enhanced exposure of the Vietnamese institutions to UK and EU HE practices. It will also address the current skills gap in research, enhance the development of strategic relationship between the involved universities, sharing of best practices and adapting existing best practices to Vietnamese context.

Development and implementation of effective partnership models will benefit the UK and Vietnamese students, academics and the industry partners engaged to enhance a long-term sustainable university-industry partnership and graduate employment, as well as in developing a set of recommendation and policy briefs to the Ministry of Education and Training.

Furthermore, this partnership will enable the HEIs partners to have access to new knowledge, expertise, facilities and enhance the quality of their research, thus improving their institutional reputations in the global HEIs research environment. The UK and Vietnam government and commercial industries may also benefit through the translation of the innovation and research outputs from the participating HEIs into economic and societal benefits. This research will be sustained and continued through the involvement of commercial sectors from both countries who are the direct beneficiaries of the innovation and research outputs from the partner universities.

III. Research outcomes

a. The key outcomes

The research was implemented with interviewing and data collection in four different university in Vietnam such as Can Tho University, Tra Vinh University, Mien Tay Construction University and Hanoi University of Mining and Geology. The interviewing questionnaires and group discussions were aimed to get key findings in the four areas such as education, research, valorization, and management. The questionnaires and discussion topics can be seen in Appendix 1, 2 and 3. The interviews has been conducted to 38 persons who representatives of the industrial companies and the results of interviewing are in Figure 2. Based on the interviewing results, the key findings are as follows:

- Education: there are 7 activities between university and company/industry have been addressed with different connection levels. In general, the level of Education area is found to be at “neutral level”. Of which, the “strongest” level of connection is activity of “Mobility of students (e.g. student internships/placements)”. The weakest connection activity between university and company/industry is “curriculum co-delivery (e.g. guest lectures)”.

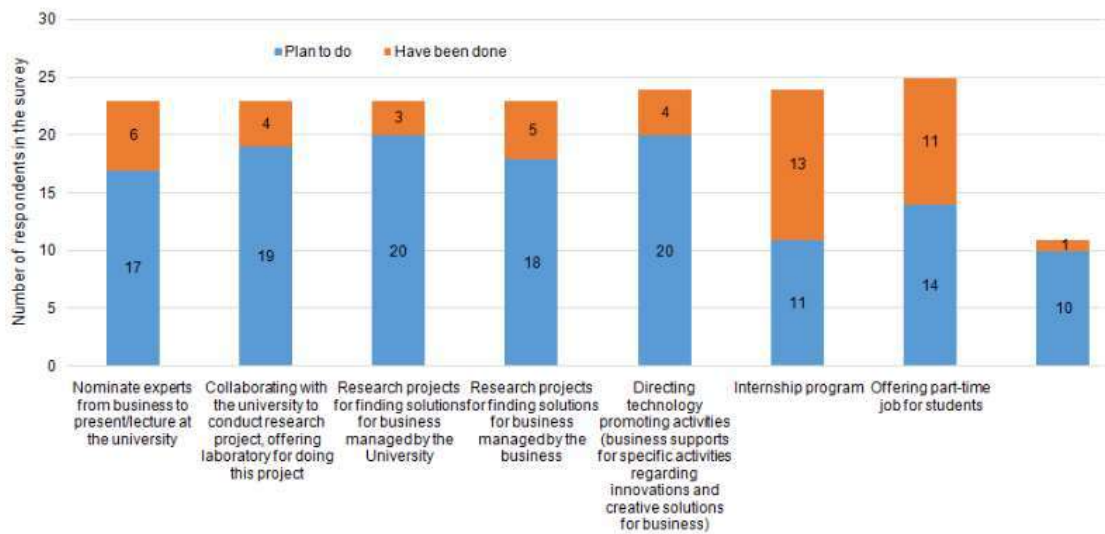


Figure 2 Interviews for industrial partners

- Research: there are 5 activities between university and business/industry have been addressed. All 5 activities of research area are addressed to be fairly good in the cooperation between university and company/industry. They are Joint R&D (incl. joint funded research), consulting to business (e.g. contract research), mobility of staff (i.e. temporary mobility of academics to business and of business people to university), Assistant supervision for students in their research projects, and Organizing annual career workshop for students (or participating in career events for students at the university).
- Valorisation: Three activities between university and business/industry have been addressed, including commercialisation of R&D results (licensing/patenting), Academic entrepreneurship and student entrepreneurship (start-ups). All activities in this area are addressed by interviewees to be low, especially the “academic entrepreneurship” seen not to be started while start-ups programmes of student have been just started recently.
- Management: Four activities between university and business/industry have been addressed, of which business people participation in universities board have been started at some universities in the preparation for autonomous progress under the

suggestion from the ministry; while the participation of academics on business boards have not been carried out. Shared resources (infrastructure, personnel, equipment) and sponsorship/scholarships supports have started since last decade.

In general, the first two categories (education and research) are the primary areas that university and companies/industries have cooperated recently. Cooperation in doing research such as organizing annual career workshop for students (or participating in career events for students at the university) and mobility of staff (i.e. temporary mobility of academics to business and of business people to universities) is the most prevalent University-Industry Cooperation in the South of Vietnam. Following by Education area, of which mobility of students (student internships/placements) is the most prevalent. In addition, the university and industry also cooperate in the areas of valorisation such as commercialisation of R&D results and student entrepreneurship, and in the area of management such as providing scholarships from company or alumni. However, they are at low level.

b. Advantages of University - Industry link under industry and university perspective

Analysing of the interviewing with industrial partners and universities' faculty members, it is possible to define a number of advantages on development of effective relations between the universities and industry in Vietnam. The list of advantages points are as follows:

Establishment of UI relationship through the alumni's system: It is easy to establish the relation between the companies/industries with the universities because of alumni links. It is from the needs of both sides where the companies/industries have practical experiences and universities have knowledge and experiences of science, technology and solutions. The connection between university and industry is very convenient, including the reason for the human resources at the industry trained by the university professors.

Preparing the employability and the readiness of graduates to the industry: Thanks to very tight connection and sharing between universities and industry, students are able to get industrial working experience through training, practicing and internships program. This improved the employability of graduates because the students are quite familiar with the working condition and environment in the industry. When students graduate, they can do a good job.

High rate of economic growth and demand for technology innovation within the industry: The demand for cooperation on scientific research and high-tech resources of industry is increasing. The trend of cooperation between industry and university will increase gradually in the future.

Hugh demands for further education: University has created good conditions for industry in part-time training for workers. In addition, university has created good conditions for industry to participate in coordinating scientific research projects/student projects co-adviser to exchange knowledge and experiences.

c. Disadvantages of University - Industry link under industry and university perspective

Big gap between the capability of university and demands of the industry: The most challenge is still the willingness of the business leader to cooperate with universities because they might not see the benefits. This is the gap between the research in the universities and the requirements for this from the industry. Sometimes, it is matter of truths. The companies are more relied on the import technologies and know-how because they do not believe in the capabilities of the universities in resolving their problems. Conversely, the level of development of industry in Vietnam are not always very high so they do not really need the technological supports from the universities.

The legal issues on the copyright and intellectual properties: The current cooperation mechanisms are not clear. Many shortcomings lead to enterprises not interested in cooperation. This is legal problem of who own the right of a technologies, universities or faculty members. Because there is still a shortage of laws and regulations on copyrights and intellectual property in Vietnam so sometimes the faculty members are more interested in setting up their own cooperation with the industry and the universities cannot take the benefits of these relations.

Awareness of the requirements and innovation of higher education programs: Training programs are sometimes outdated compared to technological advances being used in industries. This is problem of quality of lecturers and technical staffs, the practicing environment in the universities due to the lack of proper investments and the inactiveness of the faculty members.

Research and development environment for technologies and know-how transferring: There are difficulties to transfer research results to apply in industry. The environment and condition for technological maturing is not at the required level so most of the research in the universities are

stuck in the ideas and laboratory testing rather than being available for application in the practical industry. The universities lack of financial resources as well as technology applicability hunting team to incubate the research results to make it transferable.

University management issues: Management mechanism with many constraints can bring risks to those who propose innovative ideas and or related to the level of marketing and determination of university leaders.

d. University - Industry link comparisons between Vietnam and UK

The Workshops revealed that Universities across the two countries realise the importance and the speed of change in the higher education sector. There is realization that such changes require major structural, cultural, and pedagogical transformation within each university. While UK universities, in the case of UoS and KU, have made structural changes to face the demand by the industrial sectors, Vietnamese universities continue with the traditional disciplinary silos model. Partnerships with the industry remains, in the Vietnamese case, add on activities rather than an inherent objective within the University strategy that stretch across teaching as well as research. Vietnamese universities have not therefore put in place a management structure to promote, negotiate, support, and assess partnerships agreement with relevant industries. Assessments of partnerships were however lacking in both UK and Vietnamese Universities. As an outcome of the workshop, efforts are now underway to develop a credible assessment methodology that would not only benefit the Universities but also the industry.

Issues	UK	Vietnam
Willingness of cooperation between U and I	Yes	Yes
Legal basis for technology transferring and intellectual property	Yes	Not clear
Updating of educational contents in universities to industry	Yes	No
Financial resources and incubating mechanism	Partially Yes	No
Management mechanism to stimulate U-I links	Yes (UoS)	No

e. Proposals for improving the University - Industry link

In order to improve the current situation, the project revealed the need to address UI partnerships in a two main levels; the National Level and the University Level

National Level:

The innovation framework within a country plays a major role in clarifying the industrial needs and provides clarity to higher education institutions and research organisations. The publication of the UK Industrial Strategy for example, provides UK HE institutions as well as the industries with the important sectors that would support the country competitiveness. The UK Industrial Strategy was then translated into a set of sector deals and research calls that were carried out by the UK Research Institute and other research organisations. Despite the existence of the Vietnam National Innovation, such hierarchy of national objectives were not clear. In fact, very few participants have knowledge of the national priorities as expressed in the Vietnam 2030 strategy. The current Vietnam innovation framework is fragmented and needs further development to make it more visible and more relevant.

University level:

Universities need to provide a more visibility to their expertise and better market their skills and capacities. This could not only be achieved through ad hoc marketing strategies but through proper management structure that would enhance multidisciplinary approach and proper assessment tools for industrial activities. A number of UK Universities have started to look into this direction. The Industrial Collaboration Zone at the University of Salford provides a good example. Accountability, however, remains a problem in universities in both countries. Despite the structural changes at the University of Salford and Keele University for example, management of partnerships remain fragmented across Universities in UK and almost non-existence at Vietnamese Universities. Accountability requires a proper management tool, embedding the assessment not only in the feasibility of the proposed partnership but also in staff development review and promotion criteria.

IV. Conclusions

This article presents a research on the current status of university-industry links based on investigation and surveying in four universities in both South and North Vietnam. From various workshops with the deans of faculties, curriculum developing administrators, managing staffs from universities in UK and Vietnam, and the data collected, a qualitative analysis to compare the levels of linkages between the case study universities in both countries was implemented. From this analysis, the research team determined five main disadvantages of Vietnamese universities in creating effective and mutual beneficial relationships with the industry comparing with UK higher education institutions such as the lack of the willingness for cooperation between U and I, the lack of a strong legal basis for intellectual property for research within the universities, the backward of universities curriculum, unfriendly incubating environment for technology development in the universities and an ineffective mechanism for technology development. From that context, a few solutions were proposed for changing the situation at both national and university level.

Acknowledgment

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Appendices

Appendix 1: QUESTIONS FOR EDUCATION IN THE UNIVERSITIES

Areas	Current connection level				
	<i>Very weak</i>	<i>Weak</i>	<i>Neutral</i>	<i>Strong</i>	<i>Very strong</i>
1. Curriculum co-design (e.g. employers involved in curricula design with HEIs)					
2. Curriculum co-delivery (e.g. guest lectures)					
3. Mobility of students (e.g. student internships/placements)					
4. Dual education programmes (e.g. part academic, part practical)					
5. Lifelong learning for people from business (e.g. executive education, industry training and professional courses)					
6. High qualified human resources training courses based on the needs of business (graduate degree)					
7. Organizing periodic specialized workshop with scholars					

Appendix 2: QUESTIONS FOR RESEARCH IN THE UNIVERSITIES

Areas	Current connection level				
	<i>Very weak</i>	<i>Weak</i>	<i>Neutral</i>	<i>Strong</i>	<i>Very strong</i>
8. Joint R&D (incl. joint funded research)					
9. Consulting to business (e.g. contract research)					

10. Mobility of staff (i.e. temporary mobility of academics to business and of business people to HEIs)					
11. Assistant supervision for students in their research projects					
12. Organizing annual career workshop for students (or participating in career events for students at the university)					

Appendix 3: QUESTIONS FOR VALORISATION IN THE UNIVERSITIES

Areas	Current connection level				
	<i>Very weak</i>	<i>Weak</i>	<i>Neutral</i>	<i>Strong</i>	<i>Very strong</i>
13. Commercialisation of R&D results (e.g. licencing/patenting)					
14. Academic entrepreneurship (e.g. spin offs)					
15. Student entrepreneurship (e.g. start-ups)					

Appendix 3: QUESTIONS FOR MANAGEMENT IN THE UNIVERSITIES

Areas	Current connection level				
	<i>Very weak</i>	<i>Weak</i>	<i>Neutral</i>	<i>Strong</i>	<i>Very strong</i>
16. Governance (e.g. participation of academics on business boards and business people participation in HEI board)					
17. Shared resources (e.g. infrastructure, personnel, equipment)					

18. Industry support (e.g. endowments, sponsorship and scholarships)					
19. Supports in connecting alumni					

Papers

**Mrs. Khin Mar Kyu
Mrs. Aye Aye Khine**

**Creating a Healthy Development in ELT through a Needs
Analysis of Students**

Creating a Healthy Development in ELT through a Needs Analysis of Students

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Abstract: *University of Computer Studies, Yangon (UCSY) under the Department of Higher Education (HE), Ministry of Education, has already changed its education system according to the credit hour system. Coinciding with the new course path, new syllabuses and new curricula have been introduced in undergraduate level in academic year 2018-2019. Computing students have to learn English as a compulsory subject in university for two academic years. This research is aimed at investigating English needs and expectations of the first year students of UCSY in order to create a healthy development in ELT providing intended learning outcomes. The two questionnaires were used to collect data by following the SPSS (Statistical Package for the Social Sciences) in computing data. The students' questionnaire including the multi-option question patterns and five point likert-scale questions was used for exploring students' English proficiency level, needs, wishes and learning attitudes. The teachers' questionnaire also consisted of a limited number of scaled questions. The participants were 187 First Year Students and 11 English teachers of UCSY. The findings showed that speaking and listening are the most important skills that students need to improve. The participants stated the high level of their expectation in ELT and teachers' proficiency in all items. Overall, although both students and teachers revealed their positive attitude in the new program, some students do not reach the outcome level that they desire, except reading skill addressed (57.8% totally improved). Subsequently, based on the findings of the data analysis, researchers discussed shifting teaching technique rather than redesigning the current program in order to match the students' needs and wants. It is recommended that communicative language teaching (CLT) integrated with a teaching model is attuned to the present needs of the students in creating an effective and healthy environment in ELT.*

Keywords: Needs analysis, First Year Students, UCSY, creating a healthy development, CLT

1. Introduction

Nowadays, the Department of Higher Education under the Ministry of Education, Myanmar, has transformed the education system and established teaching-learning strategies in order to meet the needs of the students. According to the government education policy and goal, University of Computer Studies, Yangon (UCSY) has transformed Credit Hour System in align

[1]

with the criteria and requirements of Computer Science Education, which include school year, syllabuses and curricula, teaching-learning processes, assessments, etc. in academic year 2018-2019. Coinciding with new course path, new syllabuses and new curricula have been introduced in undergraduate level.

Teaching English as a foreign language (EFL) is necessary for students to develop a high level of English skills and to apply it for their prospective career after graduation. As students learned the English subject in high schools, they have acquired their basic knowledge of English, to some extent. However, computing students have to learn English as a compulsory subject in university for two academic years according to the new education system. 'English Result Intermediate' is prescribed as a textbook for the first year students. What is more, it is important to create in a healthy development in ELT by taking into account the students' language needs and levels of English, their expectations and attitudes. Consequently, it is necessary to identify the intended learning outcomes and to design teaching and learning activities and assessment methods in order to meet the students' needs and wants.

The aim of this study is to explore, especially in English subject, the needs and expectations of the first year students of UCSY so that a healthy development providing the students' desired learning outcomes can be created. This research study was carried out based on the followings:

- What are students' background information and levels of English proficiency?
- What English skills do students need to improve?
- Which level do students expect in ELT and their teachers' proficiency?
- What attitudes do both students and teachers believe the present curriculum and syllabus in ELT?
- How do teachers make the teaching learning environment to match needs and wants of students?

Based on the findings, discussions and some recommendations for language teachers to be considered the designing course, teaching learning strategies and the effective teaching technique which creates an effective and healthy environment in ELT are presented.

2. Literature Review

Needs analysis (NA) is a process of gathering information that concerns with what the students need and how they could deal with language skills to reach the expected situation (Long, 2005). In this study, NA is considered as a fundamental principal of collecting data in ELT to obtain useful information about the students' needs used for enabling the students achieve in

[2]

mastering English skills. According to the (Richards, 2001), considering the influence of the students' English language needs in education plays the most important factor in the areas of designing curriculum and teaching materials that provide an effective teaching and learning environment. Every institution requires to conduct NA so that the teaching materials and course contents reliably enable the students gain the targeted results. Moreover, analyzing the students' needs will help teachers to plan the teaching materials as well as teaching techniques. However, UCSY has already changed the curricula and syllabuses in academic year 2018-2019. The old syllabus has been replaced with the new one (English Results Intermediate) as a First Year course book. By carrying out a needs analysis, this study can be helpful in determining whether teaching materials and techniques implemented in ELT match the needs and wants of students for learning a language, in evaluating whether a new program is effective and acceptable to students and teachers at the same time, and in establishing a change in the areas of designing curriculum and teaching materials if the goals and objectives of students for learning a language are not reached.

Different types of NA are nowadays used for a range of exploring purposes, problems and limitations in the field of language teaching (West, 1994), (Songhori, 2008). The term "pedagogic needs analysis", an umbrella term, was introduced to describe the deficiency analysis, strategy analysis or learning needs analysis and means analysis (Chambers, 1980). In this study, pedagogic needs analysis was conducted to explore the students' needs and expectations, beliefs in ELT, English level of improvement and the usefulness of the current education system which the course is run. Knowing and understanding what the students require to improve in English learning will be useful in implementing the new program in ELT. Although the present study has limited data collection concerning with the background information, attitudes and beliefs of the students and teachers, it can help in considering the teaching methodology in order to satisfy the actual needs and expectations of students and in creating ELT more relevant and meaningful for students.

3. Methodology

The research design is planned a conceptual structure comprised of detailed methods of preparing questions, data collection and analysis (Creswell, 2014). In this research, a qualitative and quantitative method was applied to discover English language needs, levels of proficiency, expectations and perceptions in ELT first year students of UCSY. A set of questionnaire was used

to collect data by following with the SPSS in analyzing data. The details of the methodology– participants, instrumentation, data collection and data analysis are as follows:

3.1 Participants

The population of the study are (187) of first year students who have to take an English as a mandatory course and (11) teachers of English Department of UCSY in the academic year 2018 -2019. These first year students have to learn English subject according to the credit point system.

3.2 Research Instrument

This study used a set of questionnaire consisted of five main sections – reasons of students’ learning English, levels of proficiency, students’ needs, their expectations and improvements and language teaching learning attitudes of both students and teachers. To cope with the aims of the study, the students’ questionnaire that involved background data of students was designed for use in the multi-option question patterns (Boroujeni, June, 2013). And then, self-directed five point likert-scale questions were used to explore the level of students’ English proficiency level that included 6 items, the participants’ English needed to improve that consisted of 10 questions, their expectations concerned with teaching learning processes and teachers’ proficiency comprised of 10 questions and their perceptions of English language involving 5 issues. Next, the researchers prepared the question that was given a chance to choose one of these three responses (somewhat, not sure and totally improved) to investigate students’ English level of improvement, especially English four skills. The teachers’ questionnaire involving 6 questions also included only a limited number of scaled questions. Likert-scale of five degree was shown as follows:

Scores	English proficiency level	Skills needed to improve	Students’ expectation in ELT and teachers’ proficiency	Attitudes of both students and teachers
1	Very poor	Very low	Very low	Strongly disagree
2	Poor	Low	Low	disagree
3	Average	Moderate	Moderate	Neutral
4	Good	High	High	Agree
5	Excellent	Very high	Very high	Strongly Agree

Before conducting this study, a pilot study was also carried out to indicate an ideal reliability coefficient of .783 of the research instrument that was calculated by Cronbach’s Alpha of SPSS.

3.3 Data Collection

The questionnaires were delivered to the students during their class hours. The questionnaire which was designed to explore the teachers’ attitude in ELT was given to the

respondents within English Department of UCSY. After filling out by both teachers and students, the data were collected to analysis.

3.4 Data Analysis

Data collected from the questionnaires were computed using the Statistical Package for the Social Sciences (SPSS) to find out the findings. The data of background information, proficiency level of the students and the improvement of their English skill are described as the selected number, frequency and percentage in tables. After that, other sections –skills needed to be improved and expectations in ELT and proficiency of their teachers – are presented with descriptive analysis of level, mean and standard deviation. Attitudes of both teachers and students are revealed only percentage.

4. Findings

The results of the study are displayed in Table 1 to 9 which involved both of students and teachers information. The data of needs and expectations are interpreted by Strategy Inventory for Language Learning (SILL) developed by (Oxford, 1990) . SILL provides the fundamental framework to understand the mean score on needs and expectations in five-point scale questions. Hence, based on the mean score, the interpretation data of five-point scale (1-5) are stated as 1=Very low (1.0 to 1.4), 2=Low (1.5 to 2.4), 3=Moderate (2.5 to 3.4), 4=High (3.5 to 4.4) and 5=Very high (4.5 to 5.0).

According to the table 1, the students' attitude of their reason for studying English was to achieve success for future profession which was described by 163 respondents (87.2%). After that, 113 students (60.4%) addressed that they learned English for higher education.

Table 1. Reasons for studying English

Why do you need to study English?	N	Percent of cases (%)
Higher education	113	60.4%
Success for future profession	163	87.2%
It is a part of the curriculum	20	10.7%

Table 2 illustrates that 149 (79.7%) of participants considerably used English language for academic purposes, and then, 72 (38.5%) of them learned English to communicate each other in

society at the present time. However, it can be seen that using English for other purposes were only 10 (3.8%).

Table 2. Present use of English

When do you use English?	N	Percent of cases (%)
When studying	149	79.7%
When socializing	72	38.5%
Others	34	18.2%

From table 3, 168 (89.2%) of students responded that they will use English for their job in future. Moreover, it can be seen that 102 (54.5%) for socializing and 72 (38.5%) for future study were described as their purposes of using English in future.

Table 3. Future use of English

In future I shall be using English for	N	Percent of cases (%)
Higher education	72	38.5%
Job/career	168	89.2%
Socializing	102	54.5%
Others	46	24.6%

From table 4 including six items, most of the students revealed the average level of English proficiency, with the exception of reading skill (good) that was addressed by 112 (59.9%) of respondents.

Table 4. Students' proficiency level in English Skill

Value	Students' proficiency level in English skill											
	Listening skill		Speaking skill		Reading skill		Writing skill		Translating skill		Grammar skill	
	F	%	F	%	F	%	F	%	F	%	F	%
1 = Very Poor	8	4.3	7	3.7	0	0	2	1.1	0	0	2	1.1
2 = Poor	55	29.9	67	35.8	10	5.3	28	15	15	8	11	5.9
3 = Average	114	61	97	51.9	57	30.5	83	44.4	107	57.2	105	56.1
4 = Good	10	5.3	14	7.5	112	59.9	73	39	60	32.1	62	33.2
5 = Excellent	0	0	2	1.1	8	4.3	1	0.5	5	2.7	7	3.7

From table 5 that consisted of 10 questions, the data analysis stated that the level of need for the first four questions is moderate, with the range of mean scores between 3.34 and 3.47. The last six questions are high needs of English skills. It can be seen that question 10 (*Speaking*) that obtains the mean score 4.03 with the standard deviation of 0.79 is the highest item required to

improve for the students. The respondents said that they also need to improve their listening (3.95 mean score with the standard deviation 0.79).

Table 5. English language skills need to improve

Sr.	Skills need to improve	Mean	Std. Deviation	Level
1	Reading	3.34	.71	Moderate
2	English learning strategies	3.36	.99	Moderate
3	Translational techniques	3.44	.90	Moderate
4	English for computing	3.47	.90	Moderate
5	Writing	3.55	.75	High
6	Grammatical structures	3.58	.73	High
7	English for presentation skill	3.65	.82	High
8	English for reporting skill	3.74	.80	High
9	Listening	3.95	.79	High
10	Speaking	4.03	.79	High

As indicated in table 6 comprising of 10 questions, the data analysis pointed out the high level of participants' expectation in ELT and their teachers' proficiency in all items. The most

Table 6. Students' expectation in ELT and teachers' proficiency

Sr.	Students' expectation	Mean	Std. Deviation	Level
1	The teacher provides constant feedback.	3.62	.79	High
2	The teacher praises students for their effort and uses rewarding method.	3.73	.77	High
3	The teacher is able to use teaching aids in the classroom.	3.78	.73	High
4	The teacher motivates students in order to achieve their academic success and self-efficacy.	3.80	.66	High
5	The teacher facilitates to develop students' language skills through creating classroom activities.	3.83	.65	High
6	The teacher uses flexible and appropriate techniques in classroom.	3.84	.70	High
7	The teacher plans the lessons well and organize to get the objectives of the lesson for students.	3.89	.62	High
8	The teacher focuses on learning outcomes and growth.	3.89	.67	High
9	The teacher is fluent and confident in the use of English language.	4.02	.66	High
10	The teacher uses easy language to provide students understanding.	4.09	.61	High

striking feature of the expectation of the students is teachers' competency of using English to provide students' understanding, which has the mean score 4.09 with the standard deviation 0.61. Students mentioned the other highest item that is teachers' use of English language fluently and confidently, with the mean score 4.02 and the standard deviation 0.66.

According to the table 7, most of the students generally showed their positive attitude in the new system in ELT. 82% of the students stated their preference of working in classroom activities such as pair work, group work, and projects. In addition, it can be seen that they equally agreed with the statements of present syllabus, time allocation and classroom resources, with 66%, 55% and 62% of the participants, respectively. However, 83% of the respondents significantly disagreed with the teacher-centered approach.

Table 7. Percentage of students' perception in learning English

Sr.	Students' perception in Learning English	SD	D	N	A	SA
1	The current syllabus and teaching approaches fulfil my needs for the English language.	1%	6%	27%	65%	1%
2	The time allocated for the English language class is sufficient.	1%	12%	32%	51%	4%
3	The current classroom resources (i.e. teaching and learning aids, technology resources, etc.) are sufficient.	2%	20%	16%	55%	7%
4	I prefer working in pairs or groups, and projects to working alone in the class.	1%	5%	12%	51%	31%
5	I like teaching only by the teacher and no activities by the students.	38%	45%	11%	3%	3%

From table 8, it can be seen that all four skills are generally improved. 108 (57.8%) of the students pointed out that they are totally improving in reading skill. In contrast, they thought that their listening skill is the least improvement which was indicated 71 (38.0%). At the same time, students' improvements of speaking skill and writing skill was revealed 92 (49.2%) and 87 (46.5%) respectively.

Table 8. The improvement of students' English level and knowledge

Value	What do you think about the improvement of your English level and knowledge?							
	Listening skill		Speaking skill		Reading skill		Writing skill	
	F	%	F	%	F	%	F	%
Somewhat	61	32.6	45	24.1	46	24.6	36	19.3
Not sure	55	29.4	50	26.7	33	17.6	64	34.2
Totally Improved	71	38.0	92	49.2	108	57.8	87	46.5

As revealed in table 9, teachers approved of their positive attitude towards changing system in ELT. 82% of the teachers showed their agreement with the present syllabus that meets students' needs and wants and using learner-centered approach. According to the data analysis, teachers

revealed their perceptions of assessment plan (55% agree and 36% strongly agree), transforming outcome-based education (91% agree) and teaching method that focuses on fluency rather than accuracy (64% agree). On the other hand, 64% of respondents disagreed with the fact that the new curriculum and syllabus cause them to encounter difficulties in ELT.

Table 9. Percentage of teachers' beliefs in ELT

Sr.	Teachers' perception in ELT	SD	D	N	A	SA
1	Teaching should focus on fluency rather than accuracy.	0%	27%	9%	64%	0%
2	Teachers should focus learner-centered approach rather than teacher-centered one.	0%	0%	18%	27%	55%
3	The current syllabus meets students' needs and expectations.	0%	0%	18%	82%	0%
4	The assessment plan is the effective way to improve students' performance.	0%	0%	9%	55%	36%
5	Teachers face difficulties in ELT because of new curriculum and syllabus.	0%	64%	36%	0%	0%
6	Teachers are ready to transform outcome-based education system.	0%	0%	9%	91%	0%

5. Discussion

It has been stated that this study intends to investigate the English needs and expectations of first year students of UCSY in order to create a healthy development in ELT providing their intended learning outcomes (ILOs). Based on the results of the data analysis, it can be seen that changing the new system in ELT does not impact to both students and teachers of UCSY. However, it has been presented that even though speaking (mean score 4.03 with standard deviation 0.79) and listening (mean score 3.95 with standard deviation 0.79) are the most important skills that students needed to improve, some students do not reach the outcome level that they desire. It may be thought that the grammar translation method that emphasizes on a structured system of grammatical patterns and translation, especially reading skill and writing skill, and helps students produce correct sentences (Anderson, 2011) is mostly often adopted by language teachers in today's language classroom. It might also be thought that some students do not benefit from it.

At the same time, both students and teachers must share the responsibilities for teaching learning process in creating a healthy development in ELT. It has clearly been described that both participants appreciate using student-centered approach in ELT, and thus, providing to improve their English skills. From table 8, 57.8% of the students are totally improving in reading skill, but they do not progress in other skills in spite of being positive attitude of both students and teachers

in the new system in ELT. Furthermore, it has been pointed out that 64% of teachers believed to be fluent than accurate in language classroom, as indicated in Table 9. Based on the students' actual needs and wishes, EFL teachers may consider redesigning the curricula and syllabuses. In order to develop the target language learning outcomes of the students, it is likely to apply dynamic teaching approaches instead. Besides, teachers of the English Department need to consider and make plan what they teach, how they teach and how they assess in accordance with the new syllabus during the teaching learning periods. Shifting paradigm is also the powerful and effective way in which the ILOs of students will be produced. The classroom situation in which students are at the centre of knowledge transmission should be changed, but teachers should be their facilitators and guides. At the present time, there are many ways to teach a language. Among them, it is probable that using communicative language teaching (CLT) that is a method aimed at giving communicative competence rather than mastering language structures and in terms of skills, an emphasis on speaking and listening (Anderson, 2011) is able to reach the students' needs and wants. The following figure (Figure .1) shows the model of how plan to fulfil ILOs of the students in ELT, and then, it is implemented by integrating CLT in the language classrooms.

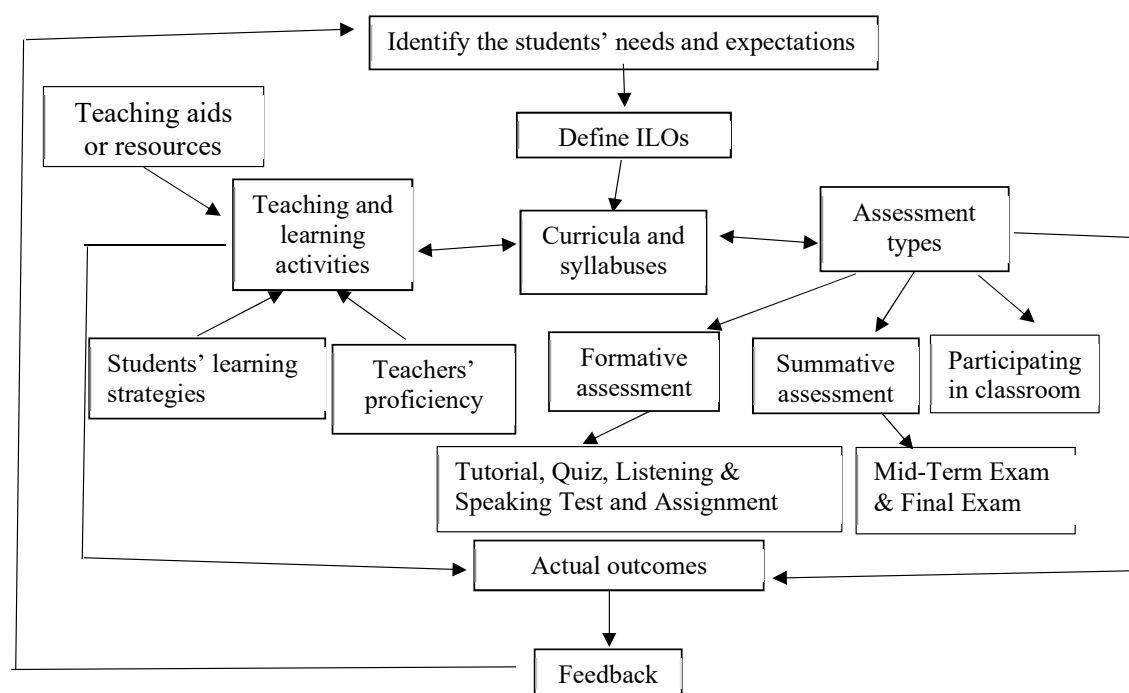


Figure. 1 Teaching model towards target outcomes

What is more, implementing the new teaching model and CLT, students can gain many benefits because it is learner-centered approach that is full of activities giving communicative competence. On the other hand, both teachers and students may face the challenges concerned with some common issues such as what learning strategies students use, how to deliver the assessment plan to students, how to evaluate the usefulness of new technique and so on. Besides, there may come up with a gap between teachers' perception and students own perception on their understanding of the course and its contents as well as evaluating their outcomes as UCSY haven't deliberately conducted the evaluation on its students understanding of the course yet. So some more in-depth study needs to be done in order to develop an effective and efficient education environment providing target outcomes of students. In a few words, education policy and goal, planning and designing course based on the students' needs and expectation (Graves, 2000), teachers and students play a vital role in creating a healthy development in education.

6. Conclusion and Recommendation

It has been described a needs analysis that finds out the level of English proficiency , the needs and expectations of the students of UCSY , the extant the current English course is useful, adequacy of the given time, and as a result of this, it is taken into account appropriate to create a healthy development in education producing their expected outcomes. According to the results of data analysis, although it has known the importance of speaking skill and listening skill of students need to improve, some students do not reach the expected outcomes. On the other hand, not only students but also teachers showed their positive attitude in the new system in ELT and their beliefs on the effectiveness of student-centered approach. It is suggested that CLT is attuned to the current needs of the students by helping them communicate fluently.

To put it briefly, this study has focused on the pedagogy needs in ELT even though other studies need to be carried out to explore needs in course design. It is hoped that this study will be able to support ways of improvement that contribute to the effectiveness of teaching and learning process through the creation of a healthy environment in ELT. Eventually, based on the results of the study, it is recommended that when we design the curriculum, students' needs and wants should be considered as well as teaching learning strategies.

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Papers



Dr. Swe Swe Aung

Blockchain-based Cross-Border Educational Transaction System

Blockchain-based Cross-Border Educational Transaction System

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Abstract: Cross-border education can be termed as the movement of student, research, academic exchange programs and institutions across national borders with the provision of international education programs. In this case, the secure and speedy education credit transfer and exchange of student records are the important factors for the cross-border education system. Thus, this paper proposes a system called “Blockchain-based Cross-Border Educational Transaction System” for the higher education industry.

Blockchain technology is one of the megatrends for recent years. It is potentially a revolutionary means of secure and transparent data sharing and processing in a wide variety of sectors including the education sector. The important concept of blockchain technology is a combination of secured distributed ledger, cryptocurrency and smart contract system. That concept is very appropriate at creating trusted and secured information processing for large and heterogeneous sets. Therefore, the blockchain-based cross-border educational transaction system enables the education industry to transfer and exchange the secure education credit and academic records for students, and other stakeholders such as government organizations, companies, and other institutions. Besides, maintaining educational records in the blockchain can protect from an unexpected natural disaster.

This paper will propose and discuss the system framework that consists of three layers. The first layer would be an interface layer for application development. The second layer provides smart contract service, core service of blockchain, for generating trusted education credit, grading and certificate transaction, as well as for secure agreements of exchange and collaborative educational processes. The last layer is a data storage layer including database methodologies and distributed computing methods.

The proposed system would overcome the barrier of traditional cross-border transaction system by allowing the globally secure, transparent, and reliable education transaction services and collaborative processes among universities in different regions.

Keywords: Blockchain, Cross-border transaction, Blockchain-based cross-border educational transaction, Cross-border education

[1]

Introduction

With the improvement of new and widely-available technologies, the global and local education industry has developed in recent year. Likewise, the movement of students across the national and international universities is growing unexpectedly. Thus, in a modern education system, cross-border education has been greatly popularized. Cross-border education can be termed as the movement of a student, research, academic exchange programs, and provider/institutions across national borders with the provision of foreign education programs. Now cross-border education plays a vital role in the nationwide capacity building process to fulfill the demand of advanced higher education.

As cross-border education is the subset of the international education system, the provision of education services still need to be speedy processes, especially in managing the speedily delivery of academic records to the relative students, researchers, and trainee, and the collaborative processes with foreign university partnerships, and a heavy regulatory burden. Furthermore, the secure education credit transfer and exchange of student records are the issues for the cross-border education system.

For these issues, the authors propose the system called “Blockchain-based cross-border educational transactions system”. The system would overcome the barrier of traditional cross-border transaction system by allowing the globally secure, transparent, and reliable education transaction services and collaborative processes among universities in different regions. Besides, the proposed system would help to reduce data management costs by eliminating many manual processes, including credential verification.

Cross-border education

Cross-border education plays an important role in the higher education industry in the process of building capacity in teaching and learning environments. Satu et al. (2004) studied the combining traditional and virtual teaching techniques in the cross-border higher educational environment between Finland and Russia by giving a realistic solution for equal collaboration between different systems and offers attractive study programs and provides a wide range of educational services worldwide.

[2]

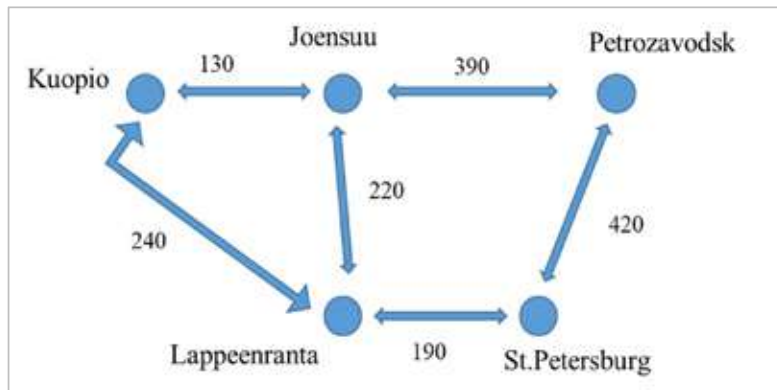


Figure 1. The core network of three Finnish and seven Russians universities [3].

Figure 1 shows the core network of three Finnish and seven Russians universities in two towns. According to Satu et al. s' research, the significant requirements of cross-border educational systems necessities special technical and administrative arrangements for the smooth implementation of shared courses in both countries to keep the quality of education and the level of achieved knowledge on the highest possible level.

Santiago et al. (2005) carried out research into the cross-border transactions in higher education of Philippine by comparing with the education of Singapore, Malaysia, and China. The authors analyzed the situation higher education of Philippines and showed the approach to adapt the cross-border education in the country aimed at students that transfer knowledge from a foreign to a local university also helps the capacity-building processes and the Philippines to be an importer of education trade. According to this research, Hong Kong, China, Singapore and Malaysia already have cross-border transactions. Besides, the author pointed out a major concern concerning to cross-border education has to do with intellectual property right to keep international agreements and quality of education [2].

According to the survey of Lane, J. et al. (2015), the number of postsecondary students enrolled outside their country of citizenship doubled from 2.1 million to 4.5 million, and an annual average growth rate of 7 %.

Stephan (2006) proposed an approach for building capacity through cross-border tertiary education. The author explains why to incorporate cross-border education into a capacity-building strategy is to increase the quantity, the quality, or the variety and relevance of domestic tertiary education provision. Cross-border education could contribute to building capacity in higher

[3]

education with the movement of student and staff to access better quality courses and research facilities abroad and return with enhanced skills and experience. Table 1 shows the types of cross-border education activities.

Table 1. Types of cross-border education activities[3]		
Type	Main forms	Examples
1. People		
Students/ trainees	Student mobility	Full study abroad or part of the academic partnership and exchange programs
Professors/ trainers	Academic/trainer mobility	For professional development as part of an academic partnership and employment in a foreign university
2. Programs		
Educational programs	Academic partnerships E-learning	Joint course or program with a foreign institution and e-learning programs
3. Institutions		
Universities Training centers Companies	Foreign campuses Foreign investments	Foreign branch campuses and the establishment of foreign-branded institutions

Yoshiko et al. (2011) carried out a part of a research project of the Japanese International Cooperation Agency Research Institute (JICA-RI) entitled “Cross-Border Higher Education for Regional Integration and Labor Markets between Malaysia and Japan to develop high-level human resources for their nations. Japanese ODA has been supporting cross-border higher education activities in engineering fields since 1993 to meet the needs of the Malaysian manufacturing sector in which Japanese firms have a substantial presence (OECD 1991; 1992; 1999a; and 1999b) [4].

As described in the previous paragraphs, cross-border education plays an important sector in building educational capacity processes. To promote a centralized learning environment into a peer-to-peer learning environment, to reduce daily manual transactions of student affair management works including manual verification of grading, score and transcript, to store student’s academic records permanently and securely and to consume the benefit of cost reduction, blockchain technology emerges with enormous opportunities to support higher education.

[4]

Blockchain Technology

The main aim of applying blockchain technology to higher education is to allow high security, reduce cost, enhancing students' assessments, and enhance authentication and trust.

Blockchain can be defined as a decentralized distributed network confirming security and transparency by retaining transactional records in a distributed ledger. Once a block has been added to the chain of blocks, nobody can change the block. This is the main concept of blockchain technology. Each block contains a unique hash code, a small amount of data, and a hash code of previous block. In other words, blockchain is a combination of three components. Those are secured distributed ledger, smart contract system, and cryptocurrency.

A. Secure Distributed Ledger Technology

A blockchain can be referred to as a distributed database that chronologically stores a chain of data packed into a sealed block in a secure and immutable manner. The chain of blocks, also called a ledger, is constantly growing, thus new blocks are being appended to the end of the ledger, whereby each new block holds a reference to the content of the previous block [1]. In other words, the blockchain will be distributed to the appropriate node for “proof of work” and “proof of authority”[5].

B. Smart Contract Service

The most important service of blockchain technology is the Smart Contract service. It makes the trusted agreement between processes based on Repository Service for Legal Laws/Principles and Repository Service for Appropriate Users. Two functions of Smart Contract Service are: (i) Find the appropriate persons to work auditing processes; (ii) Make trusted agreement between processes [5, 6].

Blockchain-based Cross-border education

In this section, the design of the proposed framework is described. There are three layers in the framework as shown in Figure 2. Layer 1 supports application developers for front end applications. This layer is the most important layer for the proposed framework. Layer 2 is a supporting layer for blockchain technology and related services such as Distributed Ledger

[5]

Service, and Smart Contract Service. This third layer is also a physical layer to support data center service. The database systems for the respective university are stored in the heterogeneous form in a distributed network. In this layer, all data system are storing into the data storage layer as virtual storage or cache storage. Some data are physically stored as well.

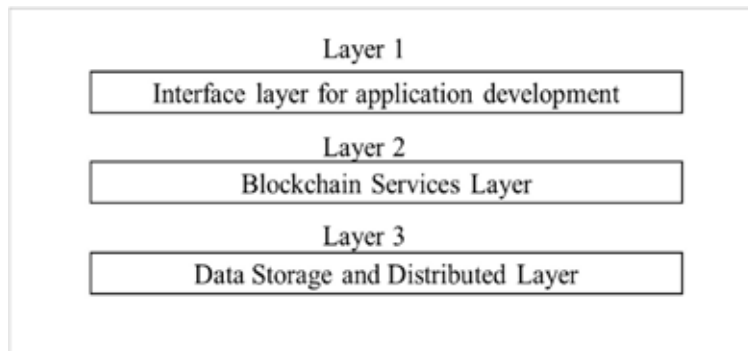


Figure 2. The three-layer architecture of the proposed system.

Figure 3 illustrates the process flow of cross-border educational transaction system based on blockchain technology. In this figure, it can be seen that the universities in both countries (country A and country B) have a network of cross-border educational environment giving access to research works, project, training, courses, e-learning and assessment. The blockchain maintains academic records (including certificates, credentials, transactions, and credits) of each education service in digital format permanently and securely.

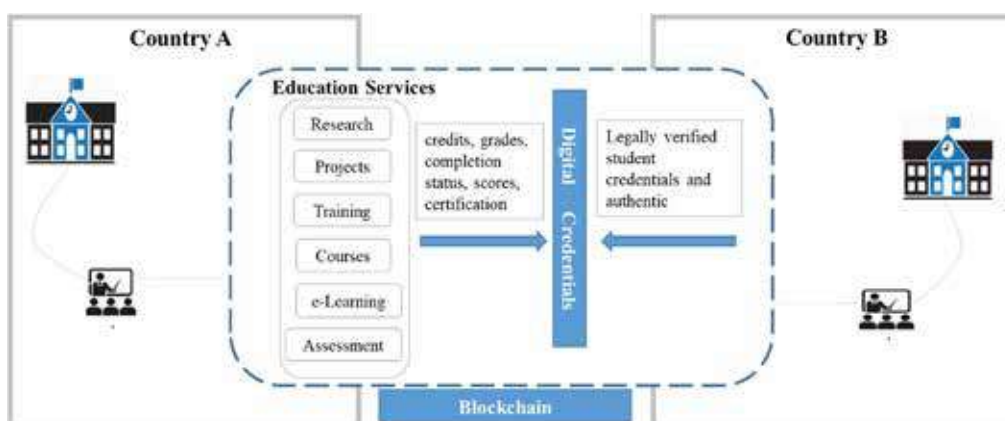


Figure 3. Process flow of cross-border educational transaction through blockchain.

[6]

In training, courses and e-learning sectors, there is daily lecture including assignment, discussion and presentation, homework, and quiz of theoretical tasks. After finishing each lecturer, the blockchain protocol creates a new block including detail records of the lecturer and then adds the new block to the end of a chain illustrated in Figure 4.

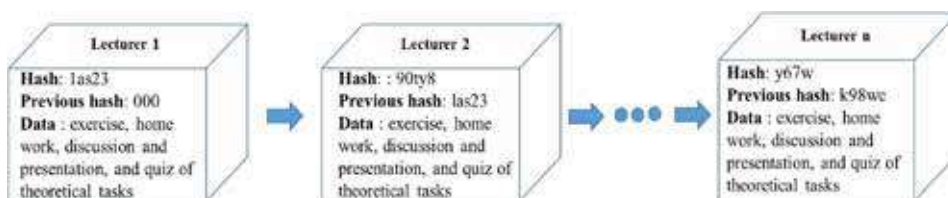


Figure 4. A chain of lecturer blocks.

Likewise, the progress and status of research and project will be recorded in a new block and added to a chain of the cross-border educational network. Student, teacher, and researcher can check their updated lecturers, courses and research work using single sign-on. The detail design of cross-border educational transaction in higher education is demonstrated in Figure 4.

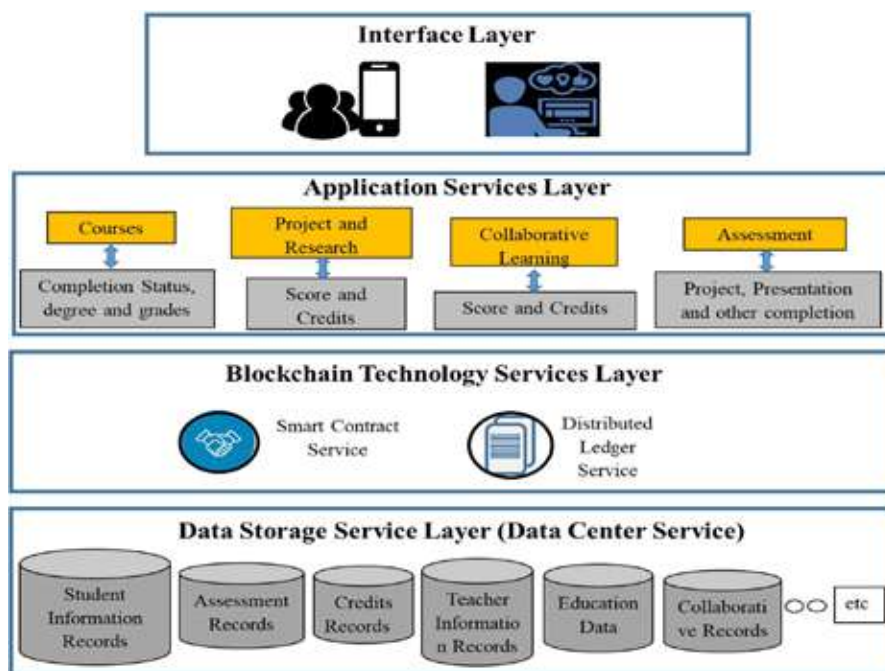


Figure 4. Detail design of propose framework.

[7]

Conclusion

According to the literal reviews of cross-border in higher education discussed in the previous section, it can be seen that, in Asia and Asia-Pacific region, cross-border is the main sector for increase in demand for high-level human resources for developing countries.

In the building educational capacity environment, a cross-border transaction in higher education is the mainstream of allowing meeting the demand. However, the education industry, especially in Myanmar, is still struggling with overload on student manual data management, and daily manual transactions of student affair management work including manual verification of grading, score, and transcript.

Thus, this paper propose a framework titled ‘ Blockchain-based Cross-border Educational Transaction System’ aimed for promoting a centralized learning environment into a peer-to-peer learning environment, reducing daily manual transactions of student affair management works including manual verification of grading, score and transcript, storing student’s academic records permanently and securely and consuming the benefit of cost reduction in higher educational environment.

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Papers

Assoc. Prof. Dr. Yazrina Yahya

Creating Inclusive Higher Education Systems: The Establishment of Intercultural Competency Application Model via AIMS

Creating Inclusive Higher Education Systems: The Establishment of Intercultural Competency Applications Via AIMS

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Abstract: The trends in higher education have changed tremendously over the past decade. Knowledge is now an asset that moves between countries. The current effort taken by the respective ministry and universities generates the globalization of universities, students and niche research. Hence, international mobility programmes are gaining popularity. It is seen to be giving significant outcomes for its students who had experienced mobility exchange. It is apparent that mobility had prepared the students to contribute to the global workforce, establish global networks and join the brain global circulation. Mobility exchange is seen to be the driving force for the students who are not able to study abroad for to obtain an international degree. It is seen to be giving opportunities to students to become “international” or global by studying abroad for a semester, which is more affordable for most students. Realising the importance of mobility exchange, the ASEAN students from the higher learning institutions across ASEAN have now taken the initiatives to go mobility either to ASEAN countries or elsewhere across the globe with the mission to become a global citizen with the global mind set. In promoting internationalization across ASEAN, SEAMEO-RIHED via its AIMS programme has laid out its pathway for students to go for mobility exchange. The paper will discuss the journey of AIMS, how its platform has promoted the multicultural diversity and inclusivity across ASEAN and the establishment of the workable model to promote multicultural and inclusivity environment. The methodology is based on the framework and applied workable process, which is mapped to develop the pragmatic model. As a result of the application of AIMS program, two outputs namely the framework and the intercultural competency application model are established. These outputs are believed to provide the contribution to the knowledge of intercultural competency, internationalization of higher education and internationalizing the curriculum.

Keywords: Internationalization of Higher Education, Intercultural Competency, AIMS, International Curriculum

[1]

Introduction

Internationalization of higher education (HE) is a process of integrating an international, intercultural or global dimension into the purpose, functions or delivery of higher education. Internationalization of HE has been seen as the process of commercializing research and higher education programs (Jones & Oleksiyenko 2011, Maringe 2010), and the recruitment of international students in order to generate revenue, secure national profile, ranking purposes and also build international reputation (Knight, 2007). The main component of internationalization of higher education are recruitment of international students, development of branch campuses, students and staffs exchange programs, internationalization of the curriculum, internationalization at home, intercultural programs, and research and education partnerships between institutions regionally and internationally. As the cost of going abroad and international students fees are increasing, alternatives are provided for students to go abroad. The alternatives are short-term mobility exchange via semester exchange, competitions, short courses, summer programs and other youth activities organized by partner universities. It is apparent that mobility exchange had prepared the students to contribute to the global workforce, establish global networks and join the brain circulation. Realizing the importance of mobility exchange, ASEAN has taken initiatives to encourage mobility among students through programs established by SEAMEO RIHED, ASEAN University Network (AUN) and SHARE. Aside from these established programs, most ASEAN universities are also promoting mobility exchange through its own personal network funded by the university itself.

In the ASEAN community the effort of pushing for mobility exchange goes back to the year 1996 where the ASEAN Vision 2020 was adopted and intended to show a way for regional co-operation. This encompassed fields of politics, culture and economic development. It pointed out the need for international cooperation in the region in order to cultivate human resources to ensure dynamic regional development (Kurokoda et. al. 2018). At the 9th ASEAN Summit in Bali, the Declaration of ASEAN Concord II was agreed upon, which stated the goal of building the ASEAN community on the three pillars of political and security, economic and socio-cultural cooperation. Hence, education was recognized as part of socio-cultural cooperation. At the tenth ASEAN summit in 2004 in Vientiane, the Vientiane Action program was adopted, which states that in order for socio-cultural community to be materialized, it is important to put forward “nurturing human”, cultural

[2]

and natural resources of the region towards sustainable development. This will enable in harmonizing and people-centered ASEAN. It includes strategic thrusts “facilitating access to education” and “managing the social impact of economic integration through human resource development”. This is in order for fomenting an ASEAN identity and a sense of ASEAN socio-cultural community. Giving quality education for national development were the main topics of ASEAN Education Minister’s meeting. The topics of discussions include the use of education in the ASEAN Charter, the importance of education in the formation of ASEAN citizens, fostering the ASEAN identity, the promotion of ASEANess among students by strengthening the ASEAN university network through the cooperation of SEAMEO and ASEAN and cooperation between East Asia Summit (EAS) member countries.

Further work through the ASEAN Charter agreed in 2008 included a statement on the necessity of educational cooperation for the “empowerment of the peoples of ASEAN and for the strengthening of the ASEAN community” (ASEAN, 2008). Therefore, education was accorded a place in each of the ASEAN plans of action, in particular in the field of higher education. In the same year, it was also agreed to develop the role of ASEAN University Network (AUN), which was established in 1995 by ASEAN with close cooperation from SEAMEO RIHED. Ever since this, both AUN and SEAMEO RIHED have played a role with the promotion of intra regional student mobility and harmonization of higher education in ASEAN (Supachai and Nopraenue 2008).

SEAMEO RIHED purpose lies in increasing the efficiency and effectiveness of higher education in member countries, and its diverse activities include technical co-operation, international conferences, training, policy research and most recently, developing the standard and framework for quality assurance in higher education (Morshidi et al, 2014). This further leads to the promotion of intra-regional mobility in 2009, known as Malaysia-Indonesia-Thailand (MIT) student mobility pilot project in 2009. The project is then expanded in 2012 and re-branded as ASEAN Mobility for Students (AIMS) (SEAMEO-RIHED, 2012).

AIMS: Its History and Core Principles

AIMS is a collaborative, multilateral student exchange program that involves government and HEI participation. The government provides financial and institutional (policy and guidelines) support while the higher education institutions (HEI) manages the exchange programs by providing the curriculum, students, standard operating procedure and staffs. This is in line with the main objective of AIMS, which is to enhance student mobility in ASEAN and beyond, as with both support from the government, and the HEIs will ensure the sustainability of AIMS program. Since its inception, six ASEAN member countries have signed the Letter of Intent (LOI) to join the AIMS program in 2013, which recognizes their commitment to ensure student mobility in the region and continuing collaboration among them. In the late 2013, Japan has signed the Addendum to the LOI to join AIMS in the spirit of ASEAN+3 , followed by Korea in 2016 (SEAMEO RIHED, 2016). To date there are nine countries, 69 HEIs and 4173 (as of July 2019) students who have joined AIMS.

The core principles of AIMS (Sujatanond, 2018) are as follows:

- Self sufficiency and solidarity whereby each member country supports their own participation in the program and moves forward together based on the academic readiness of the country
- Balanced mobility where AIMS promotes both balanced mobility and reciprocity in which the agreed number of exchange students is based on mutual agreement among participating higher education institutions nominated by their respective governments.
- Supporting mechanism in which the annual review meeting and the steering committee meeting are mechanisms, which provide governments, institutions and students with the opportunity to update progress, address existing challenges and propose further improvements to the program.

AIMS program is rather unique unlike any other mobility programs due to its core principles. For the exchange programs, it focuses on ten study fields namely Marine Science, Biodiversity, Environmental Management and Science, Economics, Engineering, Food Science and Technology, International Business, Language and Culture, Agriculture and Hospitality and Tourism.

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This further shows that with good financial and infrastructure support from the government and the HEIs, a mobility program can be successfully executed and sustainable for more than 10 years. Besides sound financial support, the framework of AIMS had also given the backing to the success of AIMS. Its framework as shown below consists of components:

- Member countries which are currently ASEAN +3 members and those who had signed the LOI with SEAMEO –RIHE
- The main secretariat is the SEAMEO-RIHED personnel and they are the ones who are involved in the management, conducting the respective meetings (The Review Meetings and The Steering Committee Meetings) between the government and the higher education institutions, developing the main policies and standards for AIMS.
- The executors are the participating higher education institutions with its divisions such as International Relations Office, The Academic Executives, the Faculty (Academics and Faculty Officers)
- The students who are participating in the AIMS program
- The alumni, the students and people who had participated in the AIMS program.

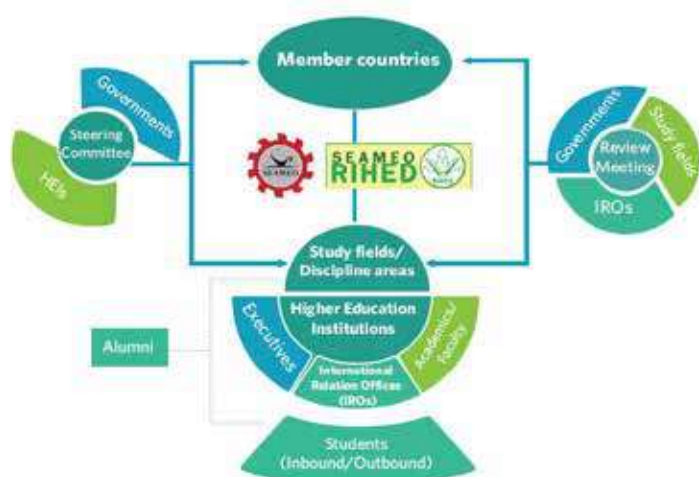


Figure 1: AIMS Framework

The framework has contributed to the success of AIMS implementation in moving students around ASEAN+3 countries for the past 10 years. SEAMEO RIHED as the central body in the

framework plays an important role in assisting the government and higher education institutions in materializing AIMS program. Aside from the two main components (the government and higher education institution) Alumni of AIMS is also an important component that plays a central role as the evidence in ensuring the success of AIMS. The synergy between these components has also contributed to the multicultural, inclusivity and intercultural competency amongst the students (Nordiana 2019).

AIMS Model in Promoting Multicultural Diversity, Inclusivity and Intercultural Competency

The AIMS mobility exchange program amongst the ASEAN students had provided the platform for diversity in campus and helps to promote inclusivity and enhance the intercultural competency knowledge between the students. In AIMS although SEAMEO RIHED plays a central role, the opportunities and the freedom to structure the program development given to the other components i.e. Government and HEI are the keys to the success of multicultural and inclusivity of the program. Figure 2 shows the structure of this is being promoted.

As stated above, the entities SEAMEO RIHED, Government and the HEIs have their roles to play and in promoting the multicultural diversity, the HEIs play a bigger role. The HEIs consists of the academics (the lecturers/professors), the international office and the students (international and local students). The academics based at the faculty are required to provide the environment of multicultural to promote intercultural communication between the students. This further means that the class is well mixed group between the international and local students. The academics along with the international office can introduce the intercultural programs, which lead to the international students to understand the local culture and vice versa. The example of programs among others is the global café with various topics like what's for breakfast, the local dance, local popular food, cultural visits, community service work and others. The support given by the international office and also the faculties such as providing good students experience via arrival, settling down programs, student buddies and problem solving support helps to provide the multicultural environment. The reflection of what the students had learned, and what is lacking also provides the values that add to the multicultural and inclusive environment. These platforms provide the stand to develop the student's intercultural competency. Via these platforms, students

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are able to acquire requisite attitude such as respect for others, curiosity towards others culture and practice, and openness in receiving the good values of others; knowledge in terms of being more cultural oriented, able to listen to others and observe and analyses more of other. Hence the students become more proactive and also well aware of their surroundings. These then lead to positive attitude, which is being empathy, interactive and having the global mind-set and attitude. This can further be described as awareness and understanding and provides autonomy to the students in making decision via their own understanding.

Intercultural Competency and Its Sustainability in AIMS

Although the model has provide a substantial support to promote intercultural competencies, it is essential that the practitioners of AIMS or any of the mobility programs understood what intercultural competency is, why it is important and how it can be sustained in a program for a long run.

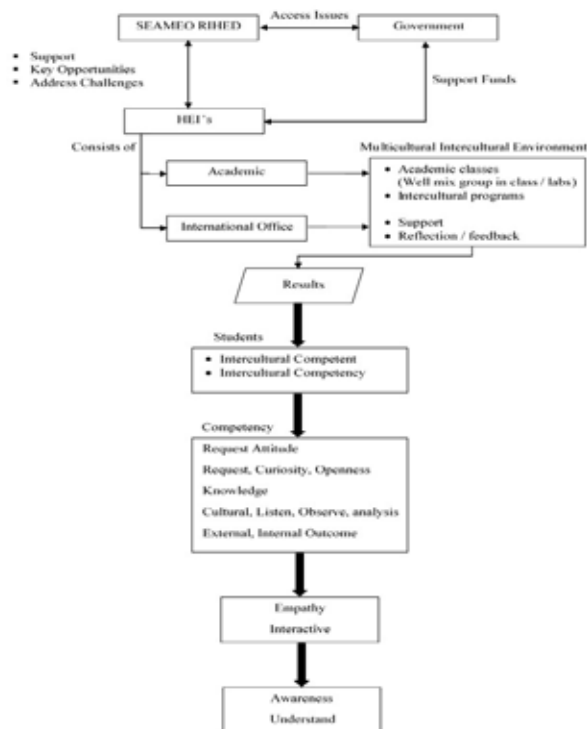


Figure 2: AIMS Model for Promoting Multicultural and Inclusivity

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Intercultural competence is an important and significant element of global readiness (Gregersan-Hermans, 2017). In general universities internationalise the campuses with a view to enhance the intercultural awareness and understanding of their students and thereby their ability to function in the globalized world. Therefore the universities are now moving forward towards student mobility, internationalization at home and internationalization of the curriculum in order to achieve this.

However, it is apparent that achieving this is not automatic, in which students who goes abroad will have the necessary intercultural competency. Often internationalization focuses on output. Hence enhancing student mobility, by increasing the number of international students coming in or providing internationalised environment by providing intercultural experience does not mean intercultural learning happens or leads to intercultural learning. Hence the mobility programs need to be designed accordingly to ensure that intercultural learning materialized. Increasingly universities who have been promoting internationalisation are aware that intercultural competence should not just be for the students who participate in the going abroad program or for incoming international students, but for all students including the locals. Therefore it is important to deliberate how to create intercultural learning opportunities that can benefit all students. This is important as all graduates will need the necessary skills to function in the globalized world, hence the need to include all students, including staffs and academics in the intercultural learning opportunities (de Wit and Hunter 2015). In materializing the intercultural learning opportunities, the concept of internationalization at home and internationalization curriculum are essential since these efforts include all students, academics and staffs.

Internationalization at home has gained popularity in the HEIs in Europe (Beelen & Jones 2015, Nilsson and Otten, 2003). The concept promotes the international and intercultural aspects where it focuses on the broadmindedness and understanding and respect for other people and their cultures within the daily reality of the international, multilingual and multicultural classroom (Teekens, 2007). In other words it can be viewed as a component of internationalization of curriculum in which that internationalization at home specifically includes the diversity represented in the campus student population and the diversity of the domestic learning environment in the process design of curriculum internationalization (Gregersen-Hermans 2016).

Internationalisation of curriculum on the other hand can be categorized into two: the formal curriculum, which refers to the syllabus and the learner activities that is credit bearing and formally access; and informal curriculum which consists of all the support services and student life activities which contributes to the student learning and development. The informal curriculum or the hidden curriculum provides and informs the students about local values, beliefs and how and when to interact with whom, when not to and reflects the social structure and dominant culture of the university (Leask 2015). Hence it is very important for the university to be aware of the hidden/informal curriculum as this is the student’s implicit learning and it influences the student’s intercultural competence development.

In developing the curriculum that includes the intercultural competence development, three dimensions are relevant (Gregersan Hermans 2016)

- 1st dimension: personality structure of the student his or her communication skills and motivation to include in intercultural contact
- 2nd dimension: personal biography of the students, in particular being independent from the parents, previous experience abroad and fluency in the language of instruction
- 3rd dimension: quality of the contact with culturally different others

Realising the importance of the two aspects mentioned above: the internationalization at home and international curriculum are important in ensuring that intercultural competence amongst students present, AIMS and its stakeholders have embedded these aspects in the governance and curriculum of the mobility programs. This is shown in the table below

Aspects	Details	Implementation of Intercultural Competency in AIMS
Internationalisation at home	Diversity represented in the campus student population	AIMS promote balanced mobility in ensuring that each campus receives students from various countries.
	Diversity of the domestic learning environment in the process design of curriculum internationalization	AIMS ensure that the students are sent to various study fields in the university. The HEIs ensure that various cultural

		activities and programs are organized to provide the international learning environment
Internationalisation of the curriculum	Formal curriculum: Syllabus and the learner activities that is credit bearing	The students who goes through AIMS mobility are required to take minimum 12 credits for the exchange program
	Informal curriculum: all the support services and student life activities which contributes to the student learning and development	HEIs involved in AIMS are required to provide the support service and student life activities. Some of the activities conducted are global café with various topics like what's for breakfast, the local dance, local popular food, cultural visits, community service work
	1 st Dimension: Personality structure of the student his or her communication skills and motivation to include in intercultural contact 2 nd dimension: personal biography of the students, in particular being independent from the parents, previous experience abroad and fluency in the language of instruction	HEIs participating in AIMS will do the interview before selecting the students to go for the mobility exchange in which the personal biography, previous experience abroad, fluency of language, communications skills, motivation and intercultural contact are being assessed
	3 rd dimension: quality of the contact with culturally different others	HEIs participating in AIMS will ensure each AIMS exchange students is assigned to a local student buddy and via the cultural activities conducted with the local students the international students are able to communicate with the locals and vice versa.

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Table 1: Intercultural Competency Application Via AIMS

Conclusion

Every stakeholders in AIMS has played their specific roles in ensuring that the students who went through AIMS mobility achieve their goals in getting intercultural competence skills, enhance their communication proficiency, which will assist them in being a global citizen with the global mindset. These are achieved via the strong commitment given by each stakeholders involved in which close examination by each stakeholders and mapping current efforts at all level to better educate the students for preparing them for the future which is volatile, uncertain, complex and ambiguous. The implementation of each activities and aspects of intercultural competency in AIMS has helped to create an inclusive higher education in ASEAN as the students who had attended AIMS are open to ideas, perspectives and ways of thinking and has the broadmindedness towards the global issues and perspectives.

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Papers



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Empowering Future Graduates for Industry 4.0

Empowering Future Graduates for Industry 4.0

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Abstract: The Chevron Enjoy Science Project is a public-private partnership focused on strengthening Thailand's competitiveness and innovation by improving science, technology, engineering and math (STEM) education, and technical vocational education and training (TVET)

The Thai TVET system does not adequately equip learners with STEM competencies and 21st century skills. As a result, Thai industry faces a shortage of skilled workers to support the increasing use of digital technologies and automation in industry as signaled in the government's "Thailand 4.0" policy. To address this, TVET learners in the Enjoy Science program gained access to a world class STEM curriculum as well as training in mechatronics and robotics, and teachers had access to a comprehensive professional development program.

Kenan Foundation Asia has partnered with Management Systems International and a National Research Team composed of educational researchers from Thai universities to evaluate these initiatives. This focused on:

- 1. Does professional development and mentoring of science teachers in the areas of project-based learning strengthen TVET teacher competency and practice?*
- 2. Do strengthened curriculum materials lead to increased relevance of the curriculum and improve TVET teacher competency and practice?*
- 3. Does increased curriculum relevance and improved teacher practice improve student learning of applied science?*

A mixed-methods approach utilized primary and secondary data analyses to establish measurements. Primary data (quantitative and qualitative) documented perceptions of teachers and students on topics such as students' perceived competence in STEM, teachers' classroom practices, students' and teachers' perception on the utility of STEM. Secondary data included Thailand's Vocational National Educational Test (V-NET) examination results. A concurrent design was applied—where both quantitative and qualitative data were collected at the same time, analyzed separately, then triangulated—to produce more substantial conclusions.

The evaluation demonstrates statistically significant positive changes in Enjoy Science teachers and the findings will inform education policy on how to ensure graduates have the STEM competencies for future work and higher education study.

Keywords: STEM (,) TVET (,) Industry 4.0

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1. Introduction

The Enjoy Science project is a 5-year, \$30 million public-private partnership, funded by Chevron, focused on strengthening Thailand’s competitiveness and innovation by improving science, technology, engineering and math (STEM) education, and technical vocational education and training (TVET).

The Thai TVET system does not adequately equip learners with STEM competencies. As a result, Thai industry faces a shortage of skilled workers to support the increasing use of digital technologies, automation and connectivity in industry as signaled in the government’s Thailand 4.0 policy. To address this, TVET learners in the Enjoy Science program have gained access to a world class STEM curriculum as well as training in mechatronics and robotics, and teachers have had access to a comprehensive professional development program. The international best-practice STEM for TVET curriculum package was selected by a committee composed of leading members of the Thai government, industry, and academe.

Kenan Foundation Asia (Kenan) has partnered with Management Systems International (MSI) to serve as a third-party evaluator of Enjoy Science. The evaluation team comprises evaluation and education experts from MSI and the members of the National Research Team (NRT) — education faculty members and research assistants from 16 regional universities throughout Thailand. This paper shares findings from direct evaluation questions to assess programmatic impact. This focused on:

1. Does professional development and mentoring of science teachers in the areas of project-based learning strengthen TVET teacher competency and practice?
2. Do strengthened curriculum materials lead to increased relevance of the curriculum and improve TVET teacher competency and practice?
3. Does increased curriculum relevance and improved teacher practice improve student learning of applied science?

2. Enjoy Science Evaluation

Broadly, the STEM for TVET (STVET) activities focus on deepening institutional capacity to develop the technical skills of existing students, with a goal of strengthening graduate employability and better serving employers’ Industry 4.0 needs. STVET activities target the curricula and instructional practices of lower vocational grade levels in the Thai education system (V1 to V3), equivalent of 10th to 12th grades. The STVET activity provides curriculum

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enhancement through the provision of the *Active Physics* (science) curricula materials developed by the National Science Foundation in the United States and comprehensive professional development for teachers. The aim of this paper is to disseminate the project’s progress on key outcomes in an effort to inform TVET education policy.

A mixed-methods approach utilized primary and secondary data analyses to establish measurements. Primary data (quantitative and qualitative) documented perceptions of teachers and students on topics such as students’ perceived competence in STEM, teachers’ classroom practices, students’ and teachers’ perception on the utility of STEM. Secondary data included the Vocational National Educational Test (V-NET) examination results. A concurrent design was applied—where both quantitative and qualitative data were collected at the same time, analyzed separately, then triangulated—to produce more substantial conclusions. This design also included time comparisons of quantitative data sources and indicators – specifically, it compared quantitative measures of key indicators at baseline (2017) with midline (2018) measures to establish any changes in the direction (positive or negative) and magnitude (strength) of the data. MSI and Kenan received approval to conduct evaluation activities from both Khon Kaen University’s and King Mongkut’s University of Technology Thonburi Institutional Review Board (IRB), a committee that ensures the ethical compliance of research design and data collection, management, analysis and reporting procedures. MSI also received overall IRB approval (exempt status) from Advarra IRB (formerly Chesapeake IRB), a leading Association for the Accreditation of Human Research Protection Programs (AAHRPP)-accredited North American review board that has extensive experience regulating and examining the ethical implications of research designs and processes in the United States and other countries.

3. Data: Sources, Collection and Sample Sizes

After receiving the identification details and characteristics of the intervention schools, MSI ran a matching analysis to

<i>Schools</i>	100
<i>Teaches</i>	283
<i>Students</i>	9,541

select comparison schools with a comparable set of characteristics. The primary characteristics of each school urban/rural locality, size of school, the administrative oversight authority and pre-intervention values on test scores in each region included in the study. At the sample level, the intervention and comparison groups are well-matched based on their sample averages within the matching school characteristics. The matching strategy was particularly close on the critical variables of pre-intervention test scores, school size and urban/rural locality. The table presents

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total sample sizes by instrument in this evaluation at midline. Quantitative data consisted of teacher and student surveys developed by MSI and the NRT prior to baseline, and the UTeach Observation Protocol (UTOP) for classroom observations and follow-on individual teacher interviews. The UTOP survey is an observational instrument developed by the University of Texas at Austin. The tool assesses a math or science classroom's quality from kindergarten to the undergraduate level. Its design allows researchers and practitioners to evaluate the teaching effectiveness, specifically considering inquiry-based instruction. UTOP is a criterion-referenced instrument that requires training to maintain the integrity and objectivity of its use. Members of the NRT received training to score the recorded sessions with the UTOP tool.

Teacher and student surveys were collected for the STVET work. The teacher survey, collected for intervention and comparison teachers, included questions about teaching practices, activities and respondents' perceptions about their own effectiveness and professional development. The survey included an additional module with questions about Enjoy Science perceptions and satisfaction for the intervention teachers only. Qualitative data sources for STVET included teacher focus group discussions (FGDs) and individual interviews. FGDs with students were also conducted to better understand the effects of Enjoy Science STVET activities on student outcomes.

The NRT developed detailed work plans and systems to ensure that data collection was standardized across provinces, was implemented with fidelity and adhered to standards of quality set by the evaluation team. Scripts and checklists guided the research assistants in sampling students and teachers, helping students, teachers and parents complete consent forms and coding and administering quantitative and qualitative data collection instruments. Systems were also developed to ensure standardization and quality of data entry and coding activities after data collection. Such systems helped the evaluation team to work toward higher inter-rater reliability in coding videotaped classroom observations and identifying emerging themes from focus group discussions and interviews.

UTOP data collection included random selection of one session of science. Researchers set up video recording materials in selected classrooms, then uploaded the videotapes to KMUTT's university central system as a backup. Two NRT members rated each videotaped session, using a double-blind system – that is, without knowing whether the recorded session was from an

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intervention or comparison teacher. If the reviewer's scores differ considerably, they review the videotaped sessions together and discuss before assigning the final rating included in the data.

National assessment data served as the key secondary data source. The V-NET exam was identified as potentially relevant for this evaluation given the Enjoy Science project's objectives and target population as well as the significant interest shown by Thai government stakeholders in these national test results. The V-NET measures the proficiency of students of vocational levels (V3 and V5), each with different subjects depending on the area of specialization. Although the assessments implemented by NIETS have been subject to scrutiny, with flags about their reliability raised by both the local and international education communities, their results still guide policy-level conversations and guidelines and receive wide attention in Thailand. V-NET student assessment data was provided by the National Institute of Educational Testing Service (NIETS). The NIETS conducted an independent review of the V-NET items specifically related to the Enjoy Science Project and shared the exam results of the students who learn from the teachers included in the evaluation, both intervention and comparison.

Analyses and Findings

This paper structures findings for Enjoy Science evaluation results into two categories: primary- and secondary-level results. The primary-level result is data emerging from the UTOP classroom observation system, given that the primary objective of the STEM for TVET activity is to improve the experiential learning of students in classrooms by strengthening teacher practices after they benefit from Enjoy Science's training in new pedagogical techniques and associated curriculum. The UTOP is a tool produced by psychometricians and that has been statistically validated in other learning contexts.

Secondary-level results emerge from teacher and student surveys. A principal component analysis (PCA) was used to create indicators for each component and tool using the items that closely relate to each topic. The PCA technique helps explain inter-relationships among a large number of variables.

For both UTOP and survey indicators, result analysis used a difference-in-differences (DID) technique for the cohorts and groups with two points-in-time comparisons. Although DID is a statistical technique commonly used in quasi-experimental studies, the results in this paper do not imply causality. Analysis of the secondary data source, V-NET data, included t-tests to compare intervention and comparison schools at each year of data available.

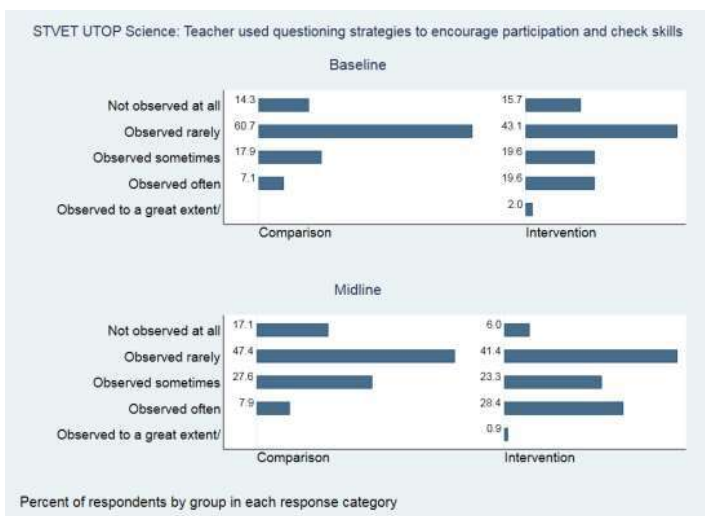
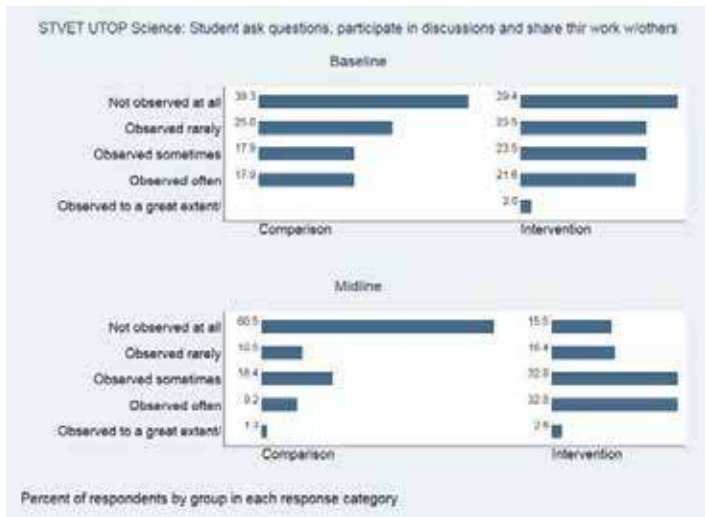
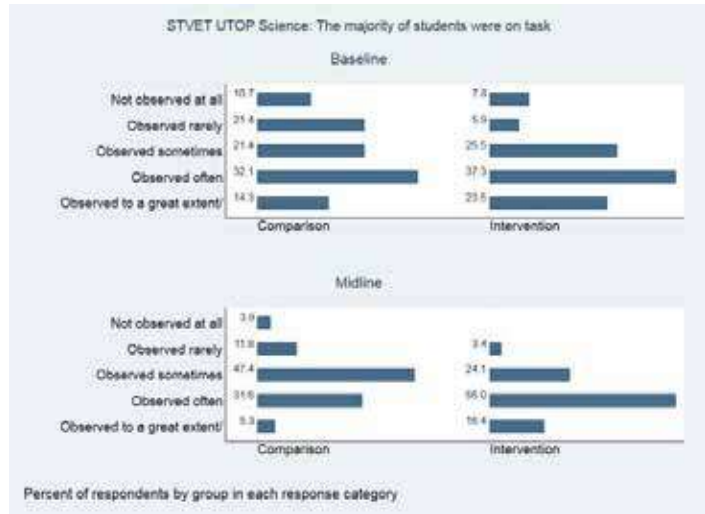
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Primary-Level Results

Items in the UTOP are organized into four sections: Classroom Environment, Lesson Structure, Implementation and Science Content.

Classroom Environment: The majority of students were on task throughout the class. At midline, the differences between intervention and comparison schools are positive and statistically significant. At midline, this was observed *often* and *to a great extent* in more than 72% of intervention schools, compared with about 37% of comparison schools.

Lesson Structure: The structure of the lesson allowed students to engage with or explore important concepts in science (instead of focusing on techniques that may be useful only on exams). The intervention schools group has a strong performance in this indicator: the differences between the intervention and comparison group at midline and DID are both positive and statistically significant. At midline, this was observed *often* and *to a great extent* in almost 60% of intervention schools, versus about

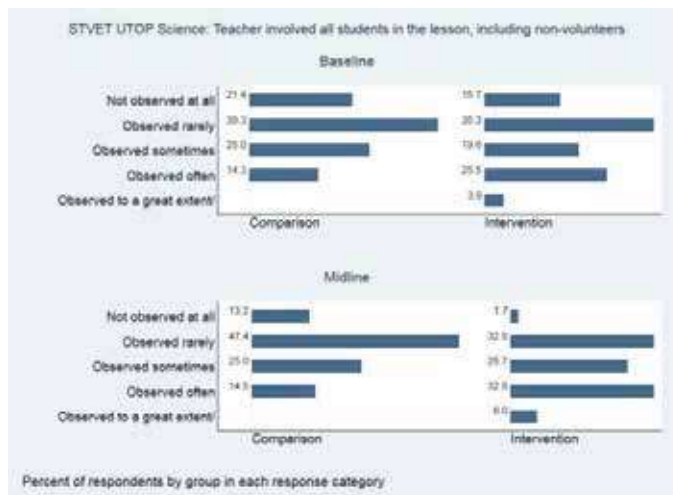


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12% of comparison schools. Finally, the lesson included an investigative or problem-based approach to important concepts in mathematics or science. Overall, the intervention group made more substantial and significant progress as differences between the intervention and comparison groups both at midline and DID are positive and statistically significant, suggesting strong evidence of the success in the current program in the activities.

Implementation

The teacher used questioning strategies to encourage participation, check on skills development and facilitate intellectual engagement and productive interaction with students about important science content and concepts. Differences at midline are statistically significant. At midline, this was observed *often* and *to a great extent* in 29.3% of



intervention schools, compared with 7.9% of comparison schools. The teacher also involved all students in the lesson (calling on non-volunteers, facilitating student-student interaction, checking in with hesitant learners, etc.). Differences at midline are positive and statistically significant. Further, the DID results are positive and statistically significant, suggesting considerable gains after the program activities were implemented in the intervention group. At midline, teachers were observed to involve all students in lessons *often* and *to a great extent* in 38.8% of intervention schools, compared with 14.5% of comparison schools.

Lastly, students ask questions, participate in discussions of the content and the procedures and share their work with others. Differences at midline and DID are positive and statistically significant, as the intervention group outperforms the comparison. That this relationship is reversed at midline, suggests that students in the intervention classrooms are considerably more engaged and participative after the program activities were implemented. At midline, students were observed to ask questions and participate in discussions more *often* and *to a great extent* in 35.4% of lessons at intervention schools, compared with 10.5% of lessons at comparison

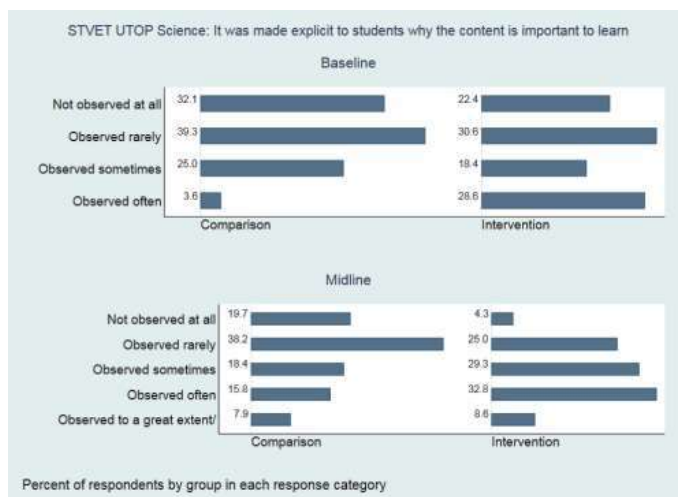
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schools. When comparing baseline-to-midline changes, the intervention group made substantial and significant progress, while comparison schools did not.

Science Concepts

The science content chosen was significant, worthwhile and industry relevant for this course (includes content standards covered, as well as examples and activities chosen by teacher).

Differences at midline and DID are positive and statistically significant, as the intervention group outperforms the comparison, suggesting a clear



difference on the teaching content after the program implementation. At midline, science content was deemed worthwhile and developmentally appropriate in lessons considerably more often and to a great extent in 75% of intervention schools (compared with observed lessons in 27.6% of comparison schools). And while the comparison group also made progress when comparing baseline-to-midline changes, the intervention group made more substantial progress. During the lesson, it was made explicit to students why the content is important to learn. Differences at midline were positive and statistically significant. Further, the DID result is positive and statistically significant, suggesting that, after the program implementation, intervention teachers are explicit in the science learning importance. Teachers were observed to explicitly demonstrate the importance of lesson content to students in 41.4% of intervention schools (compared with 23.7% of comparison schools).

Secondary-Level Results: Survey Indicators

Definitions of Key Survey Indicators for Teachers: The evaluation team created five key indicators related to: the frequency that teachers employed Enjoy Science pedagogical techniques; the confidence with which teachers adopted Enjoy Science pedagogical techniques; teachers' participation in professional development activities; teachers' ability to engage students; and teachers' perceptions of how relevant the Enjoy Science curriculum is for students. All indicators are based on self-report survey data. Definitions follow.

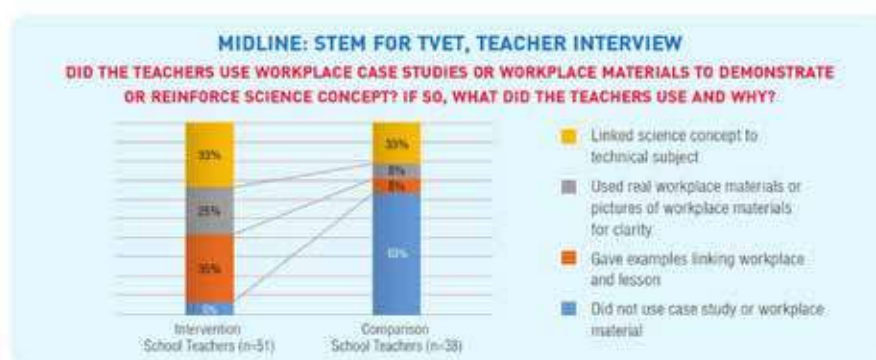
1. STVET teacher practice, behaviors measures the self-reported frequency that teachers used project-based activities, group work, experiments, inquiry or data gathering and interpretation during the past semester.
2. STVET teacher practice, professional development participation measures teachers' self-reported participation in professional development activities focusing on topics such as physics content, how science relates to daily life, activity-based teaching and learning strategies or strategies for using project-based classroom activities during the previous 12 months.
3. STVET teacher student skills, participation uses an agree/disagree scale to measure the extent to which teachers believe their students were actively participating, applying critical thinking skills, doing project-based learning activities and enjoying science during the previous semester.
4. STVET teacher practice, confidence measures teachers' self-reported confidence using activity- or project-based classroom practices, motivating their students and using science experiments as learning tools.
5. STVET teacher curriculum relevance, perception uses an agree/disagree scale to measure how well teachers believe their students understood the connection between science and workplace activities during the previous semester.

Key Secondary-Level Findings for STVET Teachers

Overall, based on midline teacher survey data, the evaluation team found that compared with teachers in the comparison group, intervention group teachers:

- Using 7 E and project-based activities and, group work as learning pedagogical techniques with greater frequency;
- Participating in more professional development activities;
- Engaging with students more often and encouraging their application of critical thinking skills; and
- Perceiving the Enjoy Science curriculum to be relevant to their students a greater percentage of time.

Positive differences in favor of the intervention group were seen in the frequency of pedagogical

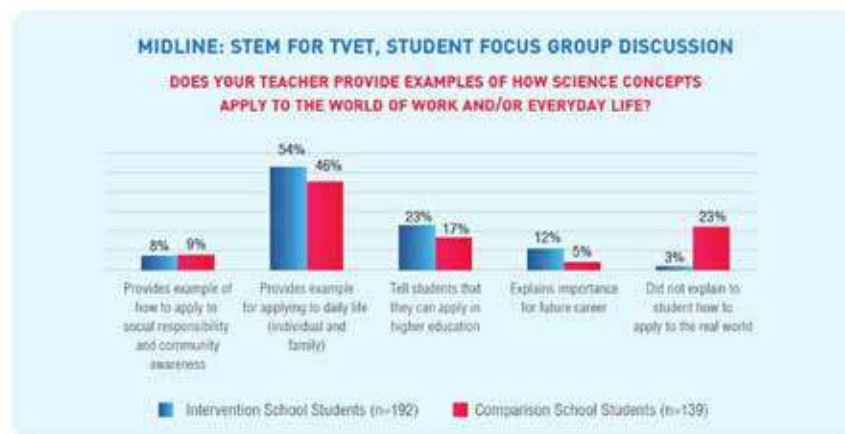


techniques (e.g. group work, project-based assignments), engagement with students during classroom activities and perceptions of curriculum relevance, and the DID was positive and significant.

These findings are complemented by some of the main results of the qualitative analysis of STEM for TVET schools which suggest that teachers in intervention schools are more likely to prepare class with the Enjoy Science material. Both teachers and students in intervention schools see content more often related to daily life. Also, teachers in intervention schools are more likely to use a teaching approach emphasizing problem solving. The student survey confirms that students learn best from this type of approach. And teachers in intervention schools are more likely to critically assess their own teaching.

Student Indicators Results

Positive differences in favor of the intervention group were found on students' perceptions of teaching practices, frequency of activities in class,



[10]

perceptions of their own abilities in math and science and the relevance of science content toward future employment opportunities. However, these differences were not statistically significant.

The DID analyses pointed to negative (but not statistically significant) associations for students in the intervention group on four indicators: student perceptions of teacher practices, student-teacher practices, in-class activities, personal perceptions of student skills and student attitudes towards science. For the first three indicators, the intervention students still outperform comparison students at midline, though this difference is narrower than at baseline, thus the negative DID result.

V-NET Results

The NIETS provided V-NET indicators relevant to the objectives and activities of the Enjoy Science project to the evaluation team. V-NET Science indicators included “solving problems in careers by scientific methods”. For the 2016 and 2017 years, the sample of V3 intervention students with available Science V-NET data score slightly more correct responses than comparison students. There are considerable limitations on the V-NET data assessments itself, as well as their relevance to the outcomes that are the focus of this evaluation, so these findings should be reviewed with caution.

Conclusions

The midline evaluation results show that Enjoy Science schools are making marked progress in improving the quality of teaching and learning. It is hoped that the findings may help to guide the work and decisions of policy makers and educators as they seek to establish effective instructional interventions in an effort to ensure equitable access to quality education.

At present, there is a significant shortage of technician level workers across all areas of manufacturing industry in Thailand. While the reasons for this skill shortage are complex, it is generally agreed that the lack of industry relevant STEM programs in vocational programs and the failure to attract young people to STEM related occupations have contributed to the current situation. If the signature policy of Thailand 4.0 (Industry 4.0) is to be achieved, three key recommendations emerge from the findings presented above.

Recommendation 1: In TVET, STEM programs cannot be isolated from the world of work. To ensure the Industry 4.0 readiness of all graduates, STEM studies should be complemented by

work opportunities for vocational students in Industry 4.0 focused companies and institutions so that they can acquire the technical competencies needed for Thailand 4.0 implementation.

Recommendation 2: An international “best practice” STEM learning package—a complete set of educational materials organized around a STEM topic such as the *Active Physics* curriculum utilized by Enjoy Science—should be adapted for use in Thai vocational schools, including:

- student textbooks
- teacher handbooks
- physical resources required for specific learning activities
- an instructional methodology
- assessment materials
- trainer professional development resources.

A program that facilitates the development of a STEM learning environment which supports the development of 21st century skills in collaboration, communication, critical thinking and problem-solving is needed to participate effectively in the world of Industry 4.0 work. Any learning materials must comply with existing OVEC curriculum in relation to STEM subjects.

Recommendation 3: Vocational teachers have a critical role to play in building the Industry 4.0 readiness of students. Government must invest in teacher capability building in relation to Industry 4.0 awareness, STEM, teachers’ technical and teaching competence, and industry-school collaboration. A comprehensive professional development element for TVET educators is critical.

Recommendation 4: The research methodology developed to assess the impact of Enjoy Science’s STEM for TVET program could be used in subsequent studies by SEAMEO member states. Such evaluation will assist in devising more effective instructional materials and instructional practices to benefit teaching and learning in TVET across the region.

Papers

**Prof. Le Ngoc Hung
Ms. Bui Thi Phuong**

**Equality and Equity in Higher Education in a Restructuring
Society: Vietnam's Case Study**

Equality and Equity in Higher Education in a Restructuring Society: Vietnam's Case Study

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Abstract: The Vietnam economic restructure and educational renovation raise several research questions on the equality and equity in higher education as follows. How equality and equity in higher education are reflected in educational policies? How can one describe and interpret expressions of equality and equity in education in Vietnam? What suggestions can be made on the renovation of the educational policies, institutions and educational systems to ensure equality and equity in the higher education to meet the requirements of the sustainable development? Analyzing existing document and statistical data this paper aims to test a general hypothesis that in the Vietnam economic restructuring process equality and equity have been institutionalized and implemented to expand educational opportunities for all citizens and decreasing inequality in higher educational. The sustainability of this tendency continues to depend much on state policies on the support to economically difficult regions and renovation of the institutions and related educational systems including policies on compulsory upper-secondary education, reforming university enrolment policy and encouraging the linkage of higher education to R&D and to the domestic and international labor markets.

Keywords: Equality, Equity, Tertiary, Education

Introduction

Vietnam has been restructuring from a centrally administrative, subsidized economy into a market-oriented system since 1986. Then, Vietnam had the population of 61.1 million people including 19.3% people living in rural area and 80.7% people living in urban area, The GDP per capita at average exchange rate was USD 86 in 1988 [1]. After more than three decades of economic restructuring in 2019 the total population is about 96.3 million people of them 65.6% of urban habitants and 34.4% of rural habitants. The GDP per capita average exchange rate was of USD 2590 in 2018 [2]. During the economic restructure the whole national educational system including higher education has been reformed and fundamentally and comprehensively renovated.

As a result, the total number of colleges and universities of 96 in 1986 went up to 235 not including the colleges of them 170 public universities and 65 non-public including private and foreign invested universities in 2017. The increase in the total number of universities at 2.5 times and the development of public-private structure with more than 27.6% private universities indicate that opportunities for higher education have been opened up to meet the citizens' increasing learning demand but it also may entail the risk of inequality and inequity. In the same period of 1986- 2017, the number of university students increased from 91.2 thousand persons to 1695.9 thousand persons. The number of students in every 10,000 people increased 12 times from 15 to 179. Regarding the public-private structure, the number of public student accounts for 85% and the rest of 15% are private students [1, 2]. The Vietnam economic restructure and educational renovation raise several research questions on the equality and equity in higher education as follows. How equality and equity in higher education are reflected in educational policies? How can one describe and interpret expressions of equality and equity in education in Vietnam? What suggestions can be made on the renovation of the educational policies, institutions and educational systems to ensure equality and equity in the higher education to meet the requirements of the sustainable development? A fundamental hypothesis is that in the Vietnam economic restructuring process equality and equity have been institutionalized and implemented to expand educational opportunities for all citizens and decreasing inequality in higher educational.

The content of this paper is structured in three parts. Part 1 clarifies the concepts of equality and equity in higher education as theoretical basis in using terminologies such a “net enrolment rate” and “gross enrolment rate” in the measurement and assessment the level of equality and equity in the inputs of the higher education. Part 2 presents the research methodology of document and statistical data analysis. Part 3 is structured into three sub-parts as follows. Sub-part 1 presents the renovation of the educational policy and legislation targeting to the realizing social equality and equity in the education in Vietnam. This policy renovation provides an institutional framework enabling the opening up schooling opportunities measured by the university enrolment rate presented in sub-part 2. The direct result of opening opportunities and equality in the inputs to higher education is an increase in the educational level that is measured by the technical and professional levels of the population at working age presented in sub-part 3. Finally, part 4 emphasizes that the renovation in policy provides an institutional factor deciding the opening up opportunities and improvement of the equality in education. However, equality and equity in

higher education depends also on other elements such as economical, rural-urban disparities and differences among geographical regions where the improvement requires further renovation in the institutional policies and the educational systems.

1. The theoretical framework of equality and equity in higher education

The concepts of equality and equity in education

The concept of equality. Education is a process consists of inputs, activities and outputs in certain socio-economic context. Therefore, the concept of equality can be defined in relation to the access, survival, output and outcome of education [3, 4, 5, and 6]. They are: (a) Equality of access measured in the possibility of accessing to education of people from different social groups, for example the possibility of accessing to universities by young people from cities may be equal to or higher than those of rural young people; (b) Equality of survival, that is a possibility the learners from different social groups may stay in the educational system to a certain educational level or degree, for example, the possibility of finishing primary, secondary or tertiary education; (c) Equality of the output reflecting the possibility of learners from different social groups learn similar contents in a certain education level in the educational system; (d) Equality of the results, that is the possibility of learners from different social groups achieving at certain educational levels and grades in graduating university and getting equal employment, income levels or social status [7].

The concept of equity. The concept of equity is also defined by Benadusi (2006) in six ways such as actual talent, equal treatment, equality among individuals, minimal level, equality among social groups (or equality of opportunities), support or advantages for the disadvantaged [7]. Equity is defined as different treatment manners to be appropriate in a certain situation [8]. Equity is an equal distribution of goods, equal distribution of benefits including the right to go for university education. Equity is a strategy to ensure an equal access and remove barriers for disadvantaged groups in processes and existing social systems [8, 9, and 10]. International education organizations use the concept of equity and relevant measures in four ways: (i) equity of learning opportunities and outcomes with measures to support the disadvantaged people [11], (ii) equity with equal and inclusive development [12], (iii) equity in accessing education with measures to support enrolment in primary, general and tertiary education [13]; (iv) equity of resources with the measures of supporting both disadvantaged students and schools [14].

Basing on the above mentioned conception of equality in education this paper uses “gross enrolment rate” and “net enrolment rate” as measures to assess the level of inequality in the inputs of higher education in Vietnam. At the same time, the rate of people having higher education (university and post-university) of the population at 15 years old and above is used as the measure to assess the level of equality in the outputs of the higher education.

The determinants of equality and equity in higher education

Gender determinants. Education opportunity and social equality in education depend much on gender, economical, rural-urban, region and other determinants [15, 16]. The theoretical approach of Women in development (WID) and Gender and development (GAD) often emphasizes the gender role in the family as reason of inequality in [16]. Gender inequality in the inputs of higher education is interpreted by the system of dual values of gender and gender role. On the one hand, women and girls often do more house work than men and boys, resulting in less opportunities for them to schooling. On the other hand, the thought of giving more importance to men and boys in the families is the reason households spend more in education for their sons than for their daughters.

Institutional determinants. According to institutional theory, key determinants of equality and equity in higher education are policy variables including the policy targeting the opening schooling opportunity and realizing the principle of equity, no discrimination in gender, minority and support to the poor, vulnerable people [17, 18]. Especially, the issue of the Law on Compulsory Primary Education and then to compulsory lower-secondary education and upper-secondary education in 1990s provides the institutional foundation for increasing education opportunities in all educational levels including higher education. Especially, according to institutional theory, the gender equality policy is a decisive element of improving equality in the inputs of education. The issue of the Law on Gender Equality (LoGE, 1996) and commitment to the implementation of millennium targets on the education provide a factor for the improvement of gender equality in the inputs of higher education [19].

Economical determinant: rich - poor polarization. The economic determinant emphasizes the decisive role of household economic condition for the opportunity of education inputs. Studies of equality in education always indicate that children in rich families have schooling opportunities many times than those in the poor families. Even in case where study fees are exempted for the

poor the rich families often spend more on their children's education than the poor do. That is why, children from rich families have more condition to study, go for additional classes and gain better results and therefore they can go further for universities. While at the same time, the children from poor families have fewer conditions for study and even they may quit after the lower-secondary or upper-secondary schools. Therefore, the opportunities for higher education of the poor households are of fewer than those for the rich ones. There can choose income quintiles to assess the poor-rich polarization. Five quintiles are determined by dividing households into five groups of 20% by their per capita income level from the lowest to the highest. There may compare the higher education enrolment rates of quintiles, particularly between the 20% lowest quintile and the 20% highest quintile to see the level of inequality in the higher education inputs. Similarly, there may compare the rates of people having higher education level of these two quintiles to see the inequality in the outputs of these lowest and highest quintiles.

Urban, rural and regional determinants. The regional determinant is reflected in two indexes: rural-urban and geo-economic. In developed industrialized countries there hardly find big difference in the socio-economic development levels between rural and urban areas and among geo-administrative regions. But, Vietnam is a poor country under the renovation, from a slowly developing to a developing one, the level of rural – urban and regional economic disparity is still large. The rural and remote areas are characterized by lower living levels and higher poverty rate than in the plain and urban area. Therefore, though the education opportunities measured by the rate of higher education inputs have been increased but are projected not equally distributed. The enrolment rates are lower in rural than in urban areas and in poor region, e.g. in mountainous areas, are lower than in richer regions, like in the plain. Noteworthy that the rural-urban and regional disparities do not only reflect the poor-rich polarization in the income levels among individuals and households but also the disparities in the public services and infrastructure like roads, clean water, health care, etc. and physical conditions for education. For example, there are fewer schools in the remote areas and schools are rather far from villages so children hardly go to secondary schools. There is shortage of teachers, physical conditions for education in the remote areas so the learning results of children are not good and then they hardly pass the secondary school examination to go for higher education. The institutional and policy determinant on the support to the poor, poor families, poor regions may help to gradually reduce the rural-urban and regional

inequality. The equality in higher education depends much on the narrowing the rural-urban and regional disparities in the development level.

2. Methodology

This research uses a qualitative method, namely document analysis method [20, 21], where documents have been collected, processed and analyzed as social facts. To do a case study of Vietnam on equality and equity in higher education two sources of data to be collected and analyzed. They are the published policy and legislation documents and statistical data on higher education in Vietnam. In Vietnam today, the most important and basic document source on the educational institution in general and on higher education in particular is the resolutions of the Vietnam's communist Party (CPV) and laws on education. The basic contents of the CPV's congresses are mainly centered in the political reports made for the conferences hold every five year since 1976 [22, 23, 26, 27, 30, and 31]. The laws on education used for the analysis are The Law on Education (1998, 2005), The Law on University Education (2012) [23, 25, and 28]. The Law on Gender Equality (1996) and The Education Development Strategy 2011-2020 also need to be used for qualitative analysis [19, 29]. The analysis of the contents of these documents is to study concepts of "equity" and "equality" in education and how directly related terminologies have been interpreted and provided in order to renovate higher education. Statistics on the higher education enrolment rate and education level rate of social groups may be collected and processed from reports on the survey results by topics for publishing in Vietnam. They may include reports on Vietnam's population and housing consensus (2009, 2019), reports on the results on the Vietnam's living standard survey (2016) and the reports on the results of labor and employment surveys in 2011, 2013, 2016 and latest Year book (2019).

3. Results

The institutional framework of equality and equity in higher education

Educational policy and legislation on equality. The CPV political report 1976 did not mention the "equality" in the education but stated the "equity" in education, namely requiring the general education to ensure that all young people and children to enjoy "equally conditions in learning and developing their talent" [22]. The political report 1986 mentioned "all people are equal before the law" [23]. Equality of educational opportunities were first time used in the Law

on Education (LOE) (1998) when it said about the learning right and duty of the citizens [24]. The equality in the learning opportunities can be understood as the state policies on the educational development have to provide equal learning conditions for citizens different in natural and social features. The LOE (1998) and the LOE (2005) provide: every citizen regardless ethnic groups, religion, family root, social status or economic condition are equal in learning opportunities [24, 25]. In relation to equality of access: According to the LOE (1998, 2005), in educational systems the learners shall be respected by schools and educational organizations and equally treated, provided with sufficient information of their learning [24, 25]. Equality in a broad term represents a participation rule of nations and international organizations in the international relationship of education that has been determined in the LOE (1998, 2005). In 2006, the CPV started the construction and completion of the system of policies to ensure the equal provision of essential educational and training services for all people [26]. In 2011, gender equality in education was concretized in the requirements for the construction and development the national strategy on gender equality and advancement of women, centering in regions where the danger of high inequality and inequity; creating conditions for women to participate in education and training to improve their qualification and meet the requirement of their work [27]. In 2012, The Law on Tertiary Education (2012) provides: the state policies on university educational development shall realize gender equality in tertiary education. The equity in accessing linked to social equity in education was clearly stated in this law: the learners shall be respected and equally treated regardless ethnic groups, religion, family root, social status or economic condition are equal in learning [28]. The equality of learning opportunities represents one of the essential rules of the educational development strategy of Vietnam in 2011-2020 period. The equality is linked to the equity to ensure that all people regardless ethnic group, religion, family root, socio-economic features, and at the same time, creating special conditions to support ethnic minority, poor people and people who are subject to social assistance policy [29].

Educational policy and legislation on equity. In 1996, the equity become one of the development objectives of the country that was stated clearly by the CPV as follows: developing the country in order to realize the objective of rich people, strong nation, equity and civilized society [30]. In 1998, it is the first time, “social equity in education” was institutionalized in the LOE (1998). The LOE (1998, 2005) provide: the State realizes the social equity in education through creating conditions so that all people can realize their learning right and duty; the State

and community assist the poor to study, creating so that good learners can develop their capacity; the State give priority to creating conditions for children of ethnic minority people, in especially socio-economically difficult regions, people subject to the support policy, disabled people to realize their learning right and duty: (i) poor group, (ii) ethnic minority group, (iii) people in poor regions, (iv) disabled people, (v) people with disadvantages, (vi) people subject to social policy and (vii) talented learners. Both the LOE (1998, 2005) and the Law of Tertiary Education (2012) mentioned the equity in accessing education, namely the law provides the tasks and rights of teachers to respect the personality of the learners, equally treat the learners, protect the rights and vested interests of the learners. In 2001, “equity in education” was first time stated and understood as a policy to create learning conditions for the poor, minority people and ensure the learning rights of the people living in two thousand poorest communes [31]. The social equity in education consists of special support policy to talented students, students of difficult living circumstances to follow for higher education levels; There is a policy and plan to select talented students, giving special attention to the children of workers, peasants to educate university and over levels; To increase the state budget on sending people for education in advanced science and technology; encouraging people to invest in sending their children to study abroad on their own. In 2006, social equity in education provides a requirement of the renovation of educational model to an open education – a model of learning society with the system of life, continuous learning, linking between study levels, disciplines and dynamic learning forms, to meet the requirements of regular learning, providing more different possibilities, opportunities for the learners, ensuring the social equality in education [26]. In 2011 ensuring social equity in education includes also a policy of giving priority, support to people and their families who devoted their work and lives to the nation, minority people, talented students, poor students, disabled students, teachers in remote and difficult regions [27]. One of Vietnam’s strategic objectives of the educational development in 2011-2020 period is to ensure the social equity in education and life learning opportunities for every person, gradually formulating the learning society [29].

The equality and equity in higher education access

The equality and equity by gender and income quintiles. Statistical data in table 1 show the equality and equity in higher education measured in the rate of males and females going for university education the right age and the income quintile in 1993-2009. Row 1 of table 1 shows the rate of people going for university increased about 5.5 times, from 1.8% to 9.6% in 1993-2009

period. The rate of males did not increase but decreased while the rate of females increased. The rate of the poorest income quintile going for university education at the right age did not increase but decreased while the rate of the richest income quintile increased very fast, 255% on average in 1993-2009 period. In 1998 one person from the quintile 1 entries university 61 person from the quintile 5 entry university. In 2009, the difference between the quintile 5 and quintile 1 is about 88 times. Thus, table 1 shows by the year 2009, Vietnam achieved gender equality in the university schooling opportunities and this may be seen as gender equality at low level with the rate of both male and female schooling at the right age lower than 10%. However, inequality in university opportunities between the poorest quintile and the richest quintile did not decrease but increased in 1993 – 2009.

Table 1. The net university enrolment rate of the whole country and by gender and income quintile,

	1993	1998	2009	Average growth
Nation	1.77	9.25	9.6	213.2
Male	-	9.95	9.1	-8.5
Female	-	8.52	10.1	18.5
Quintile 1	-	0.46	0.3	-34.8
Quintile 2	0.61	0.76	1.0	28.1
Quintile 3	0.65	3.41	5.5	243.0
Quintile 4	1.90	7.90	10.6	174.0
Quintile 5	4.56	28.13	26.3	255.2

1.

Note: average growth rate is calculated by the authors

Source: [32, 33].

The rate of university enrolment increase very fast thank to the renovation of educational institution targeting to opening up opportunities for all educational levels by the principle of equality and social equity in education. The opportunity for higher education of poor and rich groups also increases but at uneven rates. In general, the inequality in the higher educational opportunity tends to decrease.

The equity and equality by areas and regions. The statistical data in table 2 show the equality and equity in higher education measured by the rate of university entry of the population of university age in urban and rural areas and 6 economic geographic regions in Vietnam in 1998 - 2017. Table 2 indicates the opportunities for higher education in the rate of going to university and the rate of going to university at the right age have been opened for the people in the whole

country and all six regions and areas. Both of these entry rates show that the inequality between urban and rural areas increased but then decreased. On average, the opportunities for university education in urban area were as much as 4 times as compared to the rural area in 1998-2017 period. The opportunities for university education increased in all six economic regions and the rate of university entry of the Highland increased by 4 times in this period. The Red River delta has had the most opportunities and the highest rate of entry. For example, in 2017, the general rate of entry of the Red River delta was of 46% 4.6 times more than 10% of the Highland and the rate of entry at the right age was 37.4% and by 5.7 times.

Table 2. Gross and net tertiary enrolment rates of the nation and by regions, 1998-2017, in percentage

	Gross enrolment rate			Net enrolment rate		
	1998	2009	2017	1998	2009	2017
National	9.76	25.1	30.2	9.3	16.3	23.4
Urban	22.3	54.0	54.6	21.3	36.2	43.6
Rural	5.7	11.1	17.0	5.4	6.7	12.5
Urban/rural Inequality	3.9	4.9	3.2	3.9	5.4	3.4
Northern mountain	5.4	12.0	13.2	5.3	5.7	7.7
Red River Delta	16.7	39.8	46.0	16.2	27.1	37.4
Northern Middle costal	9.5	22.4	25.8	9.0	14.2	19.5
High land	2.0	13.7	9.9	1.6	7.0	6.6
South East	15.1	34.7	43.1	13.9	23.5	35.2
Cuu Long River Delta	5.9	13.3	23.9	5.5	8.1	17.7

Source: [32, 34].

The opportunities for university education measured by the rates of general enrolment and the rate of right age enrolment increase in both rural and urban areas and regions. The rural – urban inequality and also regional inequality, especially between richest, i.e. the plain and the poorest, i.e. hill and mountainous, also decrease.

The equality and equity in education output

The equality and equity in education output by gender and income quintiles. The statistics of the rate of population having university level and over indicate the level of equity and equality in the output of education measured by the rate of the population having university degrees and over of the males and females and income quintiles in 2006-2016. Table 3 indicates that the rate of the population over 15 age having university degrees in Vietnam doubled from 4.4% to 9.45 in 2006- 2016. The rate of the population having university degrees increased faster (by 4.6 times). The rate of females over 15 age having university degrees increased faster than the rate of males, thus reduced gender inequality from 1.32 times in 2006 down to 1.01 times in 2016, nearly gender equality. The gender inequality in higher education also reduced in this period. The rate of the population over 15 age of the poorest income quintile having university degrees increased by three times while the rate of the richest quintile were about double. That is why the inequity between the richest and poorest groups decreased by almost a half but still large, 38 times, meaning that one poor person had university degree 30 rich people have the university degrees in 2016.

Table 3. The percentage of population aged 15 years old graduated and post-graduated by nation, gender and income quintiles, 2006-2016, in percentage

	Level	2006	2008	2010	2012	2014	2016	Average growth
Nation	Graduate	4.4	5.1	6.4	7.1	8.5	9.4	16.5
	Post-graduate	0.1	0.1	0.23	0.29	0.4	0.46	41.8
Male	Graduate	5.0	5.7	6.9	7.5	8.8	9.5	13.8
	Post-graduate	0.2	0.2	0.3	0.37	0.52	0.57	24.5
Female	Graduate	3.8	4.5	5.9	6.7	8.3	9.4	20.0
	Post-graduate	0.1	0.1	0.17	0.22	0.29	0.36	31.1
Quintile 1	Graduate	0.2	0.3	0.3	0.4	0.6	0.6	26.7
	Post-graduate							
Quintile 2	Graduate	0.5	0.6	0.8	1.3	1.9	2.1	34.5
	Post-graduate	-	-	-	-	0.01	0.02	
Quintile 3	Graduate	1.4	1.6	2.3	3.5	4.9	5.3	31.7
	Post-graduate	-	-	0.01	0.01	0.05	0.05	
Quintile 4	Graduate	4.4	5.1	7.3	8.4	10.3	10.9	20.5
	Post-graduate	-	-	0.07	0.11	0.18	0.27	
Quintile 5	Graduate	14.1	16.5	19.4	20.1	22.9	22.7	10.3
	Post-graduate	0.5	0.6	1.0	1.25	1.64	1.58	27.8

Note: average growth rate is calculated by the authors

Source: [35].

The rate of the population at 15 age and above having post-university education increases faster than the rate of university level. Thus, the rate of university education of the poor group increases fast and hence inequality decreases fast. However, the poorest - quintile 1 and quintile 2 have had fewer opportunities for higher education and therefore the rates of people having post-university education of these two quintiles are very low.

The equality and equity in education outcome by gender and urban –rural sector. The statistical data in table 4 show that the quality and equity in higher educational outcomes measured by the rate of working people having higher educational degrees in the whole country and distributed by sex and urban and rural areas. Table 4 show that the rate of working people having higher educational degrees increased continuously nationally and for males and females and in urban and rural areas. The rate of females was faster than that of the males and the rate of rural was faster than that in urban areas. Thus, male-female and rural-urban inequality decreased in 2010-2016 period. A comparison of 6.7% of males to 5.8% of females shows that the gender disparity decreased from 1.3% in 2011 to 0.1% in 2015 – 2016. So, one can see that Vietnam gained gender equality in terms of higher education results. The difference between rural and urban areas decreased from 8.2 times in 2010 to 5.2 times in 2016, meaning that one rural laborer having higher education degree five or more than five urban workers having tertiary education degrees.

Table 4. The total of working labor force and the rate of tertiary workers by gender and regions, 2010 -2016

	2010	2011	2012	2013	2014	2015	2016
Total (thous. person)	49494	50679	51422	52208	52745	52840	53303
Tertiary worker (%)	5.7	6.1	6.4	6.9	7.6	8.5	9.0
Male (%)	-	6.7	6.9	7.3	8.0	8.5	9.1
Female	-	5.4	5.8	6.5	7.2	8.4	9.0
Urban (%)	15.6	15.5	15.7	16.6	17.9	19.2	20.0
Rural (%)	1.9	2.2	2.4	2.8	3.1	3.7	3.9

Source: [36, 37, 38].

The rates of working people, female and male, in the whole country having university education have been increasing from 2010 to 2016. Vietnam succeeded in fast reducing gender inequality and nearly achieved gender equality in 2016. The inequality between rural and urban areas decreases quickly but is still high. There may be of lower development in the rural area than in the urban area.

4. Discussion and conclusion

Discussion

The enrolment rate of female increases faster than that of male. This might be of the issue of the Law on the Gender Equality (LoGE) (1996). In general, according to the law of poverty reduction and living standard improvement of all social groups, the inequality in higher education opportunities among rich and poor quintiles tend to decrease. However, The disparity between the rich and poor quintiles are still large, indicating that higher education is still very expensive, requiring big expenditure and huge investment as compared to the living condition of the poor quintile though improved. This means that the determinant of poor-rich polarization continues to play a decisive role in higher education opportunity: rich people still have much more opportunities that the poor people do.

These are the results of the implementation of renovation in educational institution in general and in higher education in particular by the principle of equality and equity in education. There must consider the determinant of implementation of the law on university education and integration of educational targets into the national target programs on poverty reduction and national target programs on the new rural development and many other policies included in the sustainable development objective in Vietnam nowadays.

The level of gender inequality decreases causes by the renovation of educational institution basing on the principle of gender equality and equity, especially by the implementation of the LoGE (1996). At the same time, there must consider the determinant of poverty reduction due to the implementation of provisions on the renovation of educational institution in general and national target programs on poverty reduction since 1990s and the National target program on new rural development since 2010. These national target programs directly support the poor people, poor households, poor regions and the rural area.

Vietnam set the target of the construction of an open, dynamic and life-time educational system. However, in practice, Vietnam's tertiary education system is restricted in size through a standardized entry exam. Vietnam creates a university education system with the institutions of entry examination to select students basing on their merit and while they are studying at

universities they are provided with full or part of scholarship basing on their merit. Exam and scholarship institutions based on merit still induce inequality because they prioritize families with better socio-economic conditions. Rich families often make investments in their children's education to gain higher merit even in secondary school to enter universities. Inequity in university education may be expressed in the students from rich families often have opportunities to study in the public schools with physical premises available and teachers paid by the state or learn high quality educational programs with high payments relevant to students from rich families. A typical feature of a restructuring society to a market one is the inequity in university education that may be rooted from the equality and equity in general education where there are always three types of schools: public, semi-public and private schools. The general education has had specialized schools, selective classes for the minority of good pupils who are often from rich people and average schools for the majority of the rest pupils. Most of specialized school pupils and selective classes in all cities and provinces gain high scores in university entry exams to enter the best universities and in high quality programs. This is also an expression of inequity in university education, a continuous inequity from the secondary education that is consolidated, "improved" in university education with a number of institutions of opportunities to access educational resources for all students but in fact giving priority to those of better socio-economic conditions.

Conclusion

By literature review, this paper reviews the concepts of equality and equity in higher education, which can be form a theoretical framework suitable for data collection and analysis. Documents and statistical data presented in this paper tend to support the hypothesis that equality and equity have been expanded and inequality has been reduced in Vietnam during its restructuring to a market economy. The sustainability of this tendency continues to depend much on state policies on the support to economically difficult regions and renovation of the institutions and related educational systems including policies on compulsory upper-secondary education, reforming university enrolment policy and encouraging the linkage of higher education to R&D and to the domestic and international labor markets.

The issue of equality and equity in education is important especially when considering the Sustainable Development Goals (SDGs) on educational goal. The contribution of this paper is that

it presents the statistics in and different periods before and after the policy transformation. The results are relevant for all expanding education systems, not just those in transitioning economies.

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Papers

Assoc. Prof. Hazel Atilano

Crossing Cultural Boundaries: The Odyssey of Lasallian Student Teachers Abroad

Crossing Cultural Boundaries: The Odyssey of Lasallian Student Teachers Abroad

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Abstract: The internationalization of teacher education programs and the incorporation of global learning into teaching call for a process called “internationalization review,” which looks at the international experiences of faculty and students and engagement with institutions in other countries in order for internationalization to come to fruition. It is for this purpose that this narrative inquiry was undertaken to look into the stories of eight former Lasallian Pre-service Teachers (PSTs) who participated in the overseas internship program of the College of Education (CEd) and how their student teaching experience abroad has impacted their personal and professional development and challenged their perceptions cultural diversity. Employing the Descriptive Narrative Design and grounded theory coding, the narratives of eight former PSTs deployed in Japan and Thailand were reconstructed, thematized, and re-storied. Major insights from the narratives reveal the following themes: PSTs as Cultural Agents and Missionaries of Lasallian Education, Student Teaching Abroad as Both a Formative and Reformative Experience, and Overseas Internship as a Means of Preparing Future Lasallian Educators for a Culturally-responsive Education. Insights from the narratives also carried implications on pre-deployment intern preparations and collaboration with partner schools abroad.

Keywords: Internationalization, Student teaching abroad, Culturally-responsive education, Cultural diversity

Introduction

Preparing future educators for the increasingly interdependent global village of interculturally competent teachers necessitates teacher education programs that will enable prospective teachers to meet the challenges and demands of multicultural learning environments and to teach in diverse cultural settings. Higher Education Institutions (HEIs) all over the world have been looking into the impact of international student teaching experience on the professional and personal development of novice teachers. International internship programs for prospective teachers that provide those who study to become educators an opportunity to build their global teaching experiences must, therefore, be looked into, especially at present when the issue of cultural diversity, intercultural competence, and internationalization of teacher education are among the trends of 21st-century, culturally-responsive education.

In her lecture on Internationalizing Teacher Education, Joanne Arhar EdD, Interim Executive Director of Global Teacher Education, Inc. (GTEI), expounded on the need for internationalizing teacher education by pointing out that we are presently dealing with the most diverse, most connected students in history living in a world that is globally independent. As such, she emphasized that teacher education programs must encourage prospective teachers to reflect on their role in educating an increasingly diverse student population and train them towards global competence. Knight (2015) defines “internationalization” as “the process of integrating an international, intercultural, or global dimension into the purpose, functions or delivery of postsecondary education. (p.2)” Knight further claimed that the dynamic relationship between internationalization of education and globalization is an important area of study. This seems to suggest Arhar’s proposition that a process called “internationalization review” must be undertaken to look at the international experiences of faculty and students and engagement with institutions in other countries, in order for internationalization to come to fruition. An example of such internationalization review is documented in Kissock and Richardson’s (2010) online article, where they discussed their reflection on 20 year’s experience of arranging international student teaching placements and offered teacher educators tools for forwarding their teacher education programs to viability in the 21st century. They exhorted HEIs to “open the world to students through international experience and integrating global perspective throughout the curriculum” (p.89).

Globalization has not only made it possible for people to cross geographical and cultural boundaries; it has also modified interpersonal relationships among peoples from different cultures (Shaules, 2007, cited in Tu, 2013, p.5). It is clear that the University of Saint La Salle (USLS) administrators are cognizant of this reality as evidenced by their dynamic efforts in creating optimal intercultural learning through partnerships with industrial and educational partners abroad. CEd faculty and leaders, specifically, are fully aware of the fact that during overseas internship, PSTs will be challenged to adapt culturally, emotionally, intellectually, and professionally to cultural peculiarities and other culture-related challenges. They recognize the reality that internship abroad, and the pedagogical challenges that go with it, may be potentially more valuable than the PSTs’ local professional experience, since PSTs are thrown into a very unpredictable and unfamiliar multicultural arena and are forced to leave the comforts of home to immerse themselves in a foreign culture, thus pushing their limits beyond their capacity. Fusco (2015), in his online article, *The Benefits of Internships Abroad*, remarked that the ultimate goal of internship abroad is to help graduates obtain a job in the future in their field. He further added that applicants who have had an overseas internship

experience are usually highlighted as unique candidates for hiring, because their international internship experience illustrates that they are passionate, driven, and not afraid to step outside their comfort zone.

The University of Saint La Salle (USLS) is a Catholic private research university run by the De La Salle Brothers, located at La Salle Avenue, Bacolod City, Philippines. Established in 1952 as La Salle College - Bacolod, it is the second oldest campus founded by the congregation in the country. The university is a member of De La Salle Philippines, a network established in 2006 consists of 16 Lasallian educational institutions in the country. The university offers preschool, elementary, secondary (junior & senior high), undergraduate, and graduate programs. It has seven colleges namely: Business and Accountancy, Engineering and Technology, Arts and Sciences, Education, Nursing, Law, and Medicine. The University's mission is to become a learning community that forms persons of integrity committed to the care of peoples and the Earth, together and by association in shared mission.

It is worthy of note that USLS, where international linkages have been forged for years and internships abroad have been among the strengths of certain colleges, such as the College of Business and Accountancy's Tourism and Hospitality Management, the College of Arts and Sciences, and the College of Education's Overseas Internship Program, no study has been undertaken, so far, to probe into the narratives of overseas interns serving the USLS partner industries and partner schools abroad. It is this absence of research literature in this area that prompted me to undertake this inquiry into the stories of former PSTs who participated in the overseas internship program of the CED. It is my fervent hope that this study will reveal how their teaching experience abroad has impacted the personal and professional development of future Lasallian educators and how they challenge their own perceptions of their teaching practices and intercultural competence through overseas field experiences.

Specifically, I sought to answer the following overarching questions: (1) What can be learned from the stories of Lasallian PSTs -- about themselves as individuals and as student teachers -- based on their internship experiences abroad? (2) What specific events have challenged the PSTs' concept of cultural diversity and their training in principles of teaching in the course of their overseas field experience? (3) How did their international student teaching experiences prepare the PSTs for their future career in education? Ultimately, it is my goal as researcher to contribute toward an informed decision-making process pertaining to the forging of new partnerships and the revival of old ones toward the globalization of Lasallian teacher education and the Lasallian PSTs' holistic development.

Literature Review

The impact of overseas pre-service teacher training on prospective teachers' future performance, self-efficacy, and confidence in an increasingly globalized world has been the subject of numerous research across cultures (Banks, 2006; Brindley & Morton, 2007; Clement & Outlaw, 2002; Cushner, 2007b; Merryfield, 2000, cited in Tu, 2013). Mahon and Cushner's (2010) inquiry into the overseas student teaching experiences of 50 returning students yielded findings that suggested "immense benefits for the student teacher, having impact on beliefs about self and others, professional development in terms of global mindedness, and improved self-efficacy" (cited in Egeland, 2016, p. 3). This is supported by an almost parallel inquiry into the same phenomenon by Walters, Garii & Walters (2009), who explored the impact of teaching-related travel on novice teachers' cultural understanding and professional identity and discussed how prospective teachers challenge their perceptions of their professional self through international field experiences (p. S151). In another impact study, Tu (2013) sought to find out how the effects of student teachers' international teaching experiences cognitively and professionally persist or dissipate once they return to the U.S. and begin their teaching careers and found that "the experiences helped student teachers develop more confidence as teachers, more open-mindedness, adaptation, flexibility, and cultural awareness; that motivations to choose student teaching abroad were different; and that the effects of student teaching abroad have persisted in their current teaching career"(pp. 114-115). An earlier study by De Villar and Jiang (2012), titled "From Student Teaching Abroad to Teaching in the U.S. Classroom: Effects of Global Experiences on Local Instructional Practice," showed that, through exposure to cross cultural classroom, student teachers observe differences in how learners learn, which help them develop teaching abilities and apply these abilities in their own countries.

There is also a wealth of literature that reports on international internship for pre-service teachers. Cunningham's (2015) dissertation, an ethnographic study that examined how an international student teaching program may help to prepare PSTs for culturally diverse U.S. classrooms, suggested that International Student Teaching programs develop intercultural competence, which contributes to PSTs' success in culturally diverse classrooms. Equally insightful are the findings of Alford, Henderson, and Hepple (2017), from their study which investigated the intercultural learning of 10 Australian pre-service teachers participating in a short term mobility program in Malaysia. Findings confirmed that participation in this structured mobility experience promoted critical professional self-awareness regarding

cultural diversity; built trust and intercultural understanding through intensive interaction with Malaysian peers; and developed participants as more culturally responsive teachers.

Methods

Rationale for the Qualitative Research Approach

The Descriptive Narrative Design was employed because the emphasis was on the story, typically both what is and how it is narrated. The naturalistic approach to data collection, such as conducting the interview in the real world setting and in the participants' own verbal expression in a relaxed, natural, freewheeling conversation with them warrants the utilization of qualitative approach. As Patton (2002) expounds, "Qualitative designs are naturalistic to the extent that the research takes place in real world settings and the researcher does not attempt to manipulate the phenomenon of interest" (p. 39).

The Research Locales

The research locales, namely Miyakonojo City, Japan; Nakhonsawan, Thailand; and Chanthaburi, Thailand, were selected as they are the locations of our partner schools: Miyakonojo Higashi Senior High School (Miyakonojo), La Salle Chotiravi (Nakhon Sawan), and La Salle Mandapitak (Chanthaburi). As we have an existing Memorandum of Agreement with these schools, this inquiry is a necessary step to assessing the impact of our internationalization program on the said schools in these regions.

Sampling Technique and Participant Selection

This narrative inquiry focused on eight former student teachers who had their internship abroad. To identify the primary participants in this study, I utilized purposeful sampling. I purposefully selected my participants from the three overseas internship deployment areas, namely Miyakonojo City, Japan; Nakhonsawan, Thailand; and Chanthaburi, Thailand. The target participants in this study were the Lasallian PSTs who participated in the overseas internship program of the College of Education between 2014 and 2018. The key informants were identified and selected: (1) per area of deployment; (2) on the basis of their capacity to build narratives of their significant experiences as student teachers abroad; (3) on the basis of their significant contribution to language instruction in their area of deployment; and (4) on condition that they must be currently employed as classroom teachers. I selected specific participants, i.e. eight student teachers, who had had the most insightful stories of teaching abroad, using a combination of Intensity Sampling and Maximum Variation Sampling (Patton, 2002). The eight identified participants, namely (not their real names) Paul, Ruth, Timothy, Esther (Miyakonojo, Japan), Mark, Naomi (Chanthaburi), Simon, and Sarah (Nakhon Sawan),

were selected through the recommendation of the Experiential Learning Courses Coordinator and the college dean, who have sufficient knowledge of their qualifications and performance during their internship. As per Selection Criterion Number 3, key informants were either the batch leaders or the most active members of the team.

Data Collection and Processing

The narrative interview guide consisted of questions that were open-ended and framed using common everyday language, in keeping with the recommendations of qualitative researchers (Creswell, 2007; Elliot, 2005; Glesne, 2011; Merriam, 2009; Sunstein & Chiseri-Strater, 2007, cited in Cavendish, 2011, p. 46). The interviews were largely informal, completed in 60 to 90 minutes in two to five sessions, the purpose of which is to gather autobiographical narratives, stories about international teaching experiences and multi-cultural teaching stories. I was conscious of my role as a former educator abroad and recognized how my own experiences could possibly create biases, and mindful to distance myself. Note-taking and researcher's diary were essential steps in the data collection process. A researcher's diary was utilized to allow me to track my thinking in an unstructured venue as I go through the research process. Some diary entries were extracted from my journal which I wrote while I was in Miyakonojo City, Japan, as a visiting faculty from April 24 to September 29, 2016. As triangulation was employed, artifacts such as participants' internship reflection journals, teaching portfolios, videos, and photographs were examined alongside interview transcripts to check for trends and patterns, as well as for consistencies and disparities. This practice, according to Patton (2002), will help the researcher deal with possible disparities in the data and search for deeper insights on the experience being looked into (Patton, 2002, cited in Tu, 2013, p. 61).

To process and analyze my data, I drew upon the data analysis plan that involves close reading and analytical coding (Charmaz, 2006; Glesne, 2011), as well as interpretation, and reflection (Merriam, 2009). Figure 1 graphically shows the axial coding process I employed in the form of the Narrative Coding Pyramid.

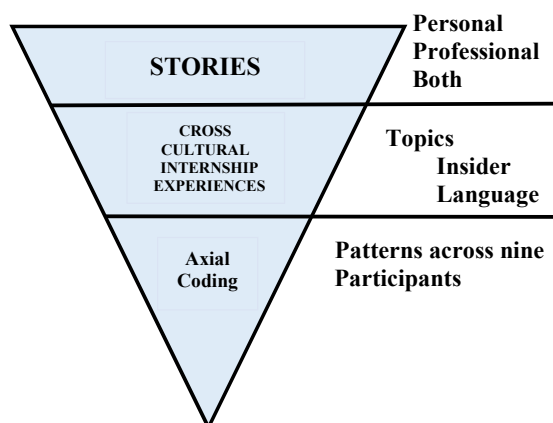


Figure 1. The Narrative Coding Pyramid

The Narrative Coding

The process of narrative coding involves labeling stories as personal accounts, or those that took place outside of school and have nothing to do with career experiences. Personal stories were taken into account, as these are stories that contributed to their personal growth in the course of their internship abroad. Internship-related narratives are those that took place inside the school and the classroom or are about their work days. Because narratives are free-flowing, everything must be captured and sorted out before they can be analyzed. In the final step of data analysis, I employed axial coding (Merriam, 2009). Axial coding or analytical coding involves both interpretation and reflection. After sorting the narratives in the interviews, I categorized for content pertaining to cross-cultural internship experiences. For example, I categorized initial codes with words such as confusing, isolation, misunderstood, and culture-shocked into an axial code I labeled “Alienation.”

Re-storying the Narratives

Re-storying the narratives involved re-examining the raw data, identifying key elements, organizing and sequencing these elements, and then retelling a story that describes the individual’s experiences. This process of re-storying revealed the sequence of experiences and the themes that emerged from the participants’ narratives. Reconstructing the individual and shared stories of the participants made it possible for me to answer the overarching questions I posed earlier in this paper.

Evidence of Quality, Validity, and Truthfulness

To confirm the accuracy of the reconstruction of these experiences, I involved the participants in a process called member checking. In consideration of the truth-value of qualitative research, I furnished the participants with a copy of the original transcriptions of the interview to validate the accuracy of the document recording their perspectives regarding the narratives they shared. They were also provided with a synopsis of the findings of the completed study. This practice is in keeping with Schurink, Schurink and Poggenpoel's (1998) means of achieving truth in qualitative research.

Positioning

As a narrative inquiry researcher who had a teaching experience abroad, I made myself wary of possible tensions between my own narrative and the narratives of my participants (Clandinin & Connelly, 1996, cited in Cavendish, 2011). In view of this, I identified and bracketed my own international teaching experiences and stories in order to eliminate researcher biases. Etherington (2009) recommends using a journal "to keep a focus on our internal responses as researchers and capture our changing and developing understanding of method and content" (p.86). I had to consciously separate my experiences as a former Assistant Language Teacher in Japan from the personal narratives of the participants, in order to eliminate biases and to monitor my subjectivity, such that they do not in any way influence my analysis of data.

Results and Discussion

Findings and Themes from the Narratives

Based on the eight narratives of the overseas interns detailing their personal and professional cross-cultural experiences, I drew significant insights and deduced three themes to address the following research questions: (1) What can we learn from the stories of Lasallian PSTs-- about themselves as individuals and as student teachers -- based on their internship experiences abroad? (2) What specific events have challenged the PSTs' concept of cultural diversity and their training in principles of teaching in the course of their overseas field experience? (3) How did their international experiences prepare the PSTs for their future career in education?

Theme 1: Lasallian PSTs as Cultural Agents and Missionaries

Bringing Lasallian education to a foreign land, in a culture very different from their own, the PSTs function as both agents of culture and missionaries. They brought with them their own cultural orientation as Filipinos, as well as their training as future Lasallian teachers and put these to use as they negotiate tensions, resolve conflicts, make decisions, and reflect on

their teaching experiences as foreign interns. In addressing cultural diversity in the classroom, as well as in their day-to-day encounters with the local teachers, the PSTs re-examined their assumptions and preconceptions about the culture of the host country and made adjustments when the circumstances called for it.

In all the narratives of the eight participants, the PSTs provided insights on how they dealt with culture shock, language barrier, traditional and ineffective methods of teaching, corporal punishment inside the classroom, and other forms of tension; how they reflected on their actions and decision-making process in response to these challenges; and how they made adjustments and modified their behavior in order to work and live harmoniously with the locals. In all of these lived experiences, the PSTs' cultural orientation as Filipinos greatly influenced their actions. In carrying out their duties as student teachers, their Lasallian training became their tool. As shown through the narratives of Paul and Ruth, their achievement of a global mindset and search for a common ground were made possible by the recurring cycle of decision making, reflecting, and adapting. Paul drew from his Lasallian training when he introduced innovations in the teaching of English in Japan. Ruth's passion for teaching and patience, which she attributes to being a Filipina, made it possible for her to establish connection and rapport with the Japanese teachers and students. This finding is consistent with Cavendish's (2011) claim that personal experiences, professional identities, and perspectives affect the teacher's attention to cultural diversity within their classrooms.

Timothy's grit and resilience as a Filipino helped him breeze through the heavy workload and great expectations heaped upon him by his cooperating school abroad. Meanwhile, Mark and Naomi's initial experience of alienation due to language barrier and the local's negative attitude towards the English language became an opportunity for them to turn the situation around and integrate themselves into the system and the local culture. This integration was achieved through the same process of decision making, reflecting, and adapting. This was seen in the teaching strategies they devised in order to make the lesson more relatable to the Thai students. In a way, Mark and Naomi have become, in the words of Alban (2013), "teachers and learners of culture" by integrating into a new cultural setting. Esther's, Simon's and Sarah's stories of innovation, compassion and life-changing classroom experiences are reflective of the Lasallian mission of teaching minds, touching hearts, and transforming lives. By always remembering their Lasallianization training and Filipino values, the Lasallian PSTs are actively enacting their roles as agents of culture and missionaries of Lasallian education.

Theme 2: Overseas Internship as Both a Formative and Reformative Experience for Lasallian PSTs

In the narratives I reconstructed, I organized the stories of the eight PSTs into: Personal and Internship-related Stories, Events that Challenged their Concept of Cultural Diversity, and Impact of International Internship on their Professional Lives. The objective of this organizational framework is, ultimately, to reveal the personal and professional impact of the PSTs' student teaching experiences abroad. As shown consistently in the stories of the eight participants, international internship has contributed to a great extent to their maturity as an individual, to their becoming independent, resourceful, innovative, and adaptable teachers. All eight participants are presently employed, five of them within the country and three abroad. All of them attribute their teaching competence and success in their teaching career to their internship abroad. Timothy, in particular, has been successful in introducing innovations to his department as the current Department Head of English at a private Senior High School in Bacolod City because of his training in designing the language program and his experience in preparing lesson modules back in Japan. Sarah, who is presently employed at a preschool in Thailand is effortlessly adjusting to the teaching and learning climate of the school because of her student teaching experience at the preschool department of La Salle Chotiravi in Nakhonsawan. Meanwhile, Ruth, now in her third year as an Assistant Language Teacher in Japan, is being groomed to be the language program head by the school management because of her efficiency and competence as English teacher.

The success stories of Paul, Esther, Mark, Simon, and Naomi all reflect the same significant impact of their exposure to cross cultural classrooms and foreign culture. The fact that all eight of them are currently employed, well-placed, and trusted by their respective school administrators is proof enough that, indeed, their overseas internship experience has a deep and life-changing impact on their lives as individuals and as Lasallian educators. This finding confirms Tu's (2013) conclusion that internship experiences abroad helped student teachers develop more confidence as teachers, more open-mindedness, adaptation, flexibility, and cultural awareness. This goes to show that student teaching experience abroad is both formative and reformative, because it does not only develop PSTs personally and professionally, it also transforms them into more mature, more culturally literate, and more dedicated teachers of the future.

Theme 3: A Culturally-responsive Education Through Overseas Internship

The term “cultural vision” was coined by Mary Bateson in 1994 (Cavendish, 2011) and defined as the ability to see the multiple worlds of the school, the teacher, and the students, which co-exist in the classroom. This implies that a culturally responsive education and educator must possess the cultural vision. Culturally responsive teachers, according to Villegas and Lucas (2002, cited in Cavendish, 2011), “are those who have a sociocultural consciousness, have affirming views of students, sense themselves as change agents, are constructivists familiar with students’ prior knowledge and beliefs, and design instruction based on the known to expand beyond the familiar” (p. 130). Figure 2 shows the features of a culturally-responsive education.

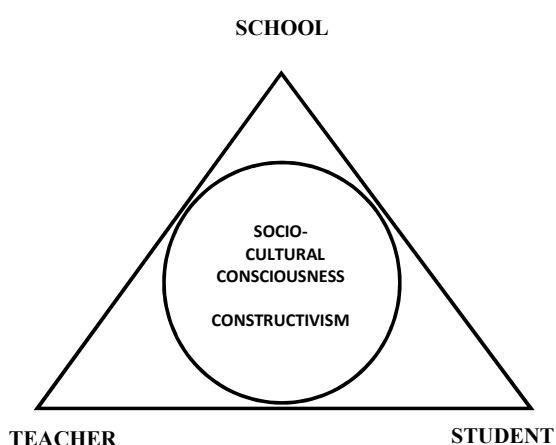


Figure 2. A Culturally-responsive Education Paradigm

From my thorough examination of their stories, I can confidently claim that the eight participants in this study were culturally responsive student teachers. This claim is backed up by the events in the narratives that show how all eight of them played the role of “change agents” through the innovative, interactive, constructivist teaching strategies they employed, without losing sight of their foreign students’ cultural orientation, customs, and beliefs. Through their cultural vision, the PSTs were able to see the interplay among the country’s culture, the school’s sub-culture, and the local teachers’ and students’ cultural orientation and adapt their teaching to these aspects of their cultural diversity.

As can be seen in the classroom experiences of the PSTs in Japan and in Thailand, interactive and collaborative activities were employed; tensions were negotiated and conflicts resolved with sociocultural consciousness; and instruction was designed taking into consideration the locals’ customs and beliefs. This is evidence to what the findings of Cunningham (2015) and Marx and Moss (2017) have shown that international student

teaching programs effectively develop intercultural competence and positively influence intercultural development by exposing PSTs to culturally diverse classrooms.

Conclusion

In the narrative interviews, each participant described how s/he emerged as a “changed person” after the internship abroad. Common themes in the area of personal development are: resilience in the face of adversity, gaining independence, finding one’s purpose, and leaving one’s comfort zone. All the participants claimed that their student teaching experience overseas has transformed their lives and made them become more mature, more patient, and more culturally literate. As student teachers and future educators (i.e., at the time of their internship), the narratives of the eight participants revolve around two major themes: teaching as a mission and vocation and Lasallian student teachers as cultural agents. Being placed in a culturally unfamiliar setting as foreign teachers made the participants experience the very essence of teaching as a mission. The stories of Simon and Sarah are particularly insightful because of the realization that they were sent to Thailand for a purpose that goes beyond teaching, that they were there to bring Lasallian education to the last, the lost, and the least and make sacrifices in the process of carrying out this mission. As agents of culture, the participants learned to adopt a global mindset by being aware of their own cultural orientation and combining this with their knowledge about the foreign culture they were immersed in, in order to make decisions, negotiate tensions, resolve conflicts, and adapt, thus making them, in the words of Alban (2013), “teachers and learners of culture.”

From the narratives of all eight participants, there seems to be a common singular event that challenged their concept of cultural diversity -- the locals’ negative attitude towards English. Here in the Philippines, they were taught that English, as the *lingua franca* of a globalized world, is an indispensable tool for international understanding and an important requisite for promotion and professional enhancement. However, their encounters with the locals during their internship abroad showed them a reality that is quite different from their reality as Filipinos who value English highly as their Second Language and even associate English proficiency with high educational attainment and high social status. The cross cultural classroom also posed a different kind of challenge to the participants in terms of pedagogy. The instruction they received in the course Principles of Teaching and other Professional Education subjects seemed insufficient in the context of the foreign classroom and workplace. Having to contend with language barrier and culture shock, these Filipino Lasallian student teachers had moments of doubting and questioning their preparedness and ability to

effectively teach English to foreign students. Considering the fact that they were novices in the field, that some of them were not specializing in English language education, and that they were sent abroad without training in TESOL or an orientation on Teaching English as a Foreign Language (TEFL), it seems logical that they faced great difficulties in dealing with the challenges of being foreign student teachers teaching English as a foreign language to foreign students.

Based on their narratives, all eight participants claimed that their success and efficiency in their present career as teachers is highly attributable to their student teaching experiences abroad. Worthy of note is Timothy's professional journey from being a regular English teacher towards becoming the English Subject Coordinator, a function that requires a great deal of flexibility and resilience, two attitudes he developed during his Japan internship. Paul's EFL teaching career in Thailand has been successful so far because of his experience as EFL teacher in Japan. He and Sarah, who is also currently employed in Thailand, were able to adapt easily to the Thai culture because of their previous experiences with a foreign culture and people. Ruth was hired by the school in Japan where she interned because of her significant contribution to the English Language Program of the school. Being in the public school system, Mark and Simon deal with scarce teaching and learning resources on a daily basis, but because of their resourcefulness and innovative ideas, which they acquired through overseas internship, they are now among the most promising English teachers in their respective schools in the Municipality of Hinigaran and in Bago City. This confirms one of the findings of Tu (2013) that the effects of student teaching abroad have persisted in the former student teachers' current teaching career. This goes to show that internship abroad is a vital component of teacher formation and education.

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Papers



Ms. Aye Pa Pa Myo

An Investigation into Tertiary Level Education Reform in Myanmar towards Inclusive and Accessible Quality Higher Education through Analytical Approach

An Investigation into Tertiary Level Educational Reform in Myanmar towards Inclusive and Accessible Quality Higher Education through Analytical Approach

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***Abstract:** It is generally said that it is very essential for a country to be able to produce many educated persons who have already obtained the degrees for respectively specialized subjects. As it is essential to produce educators who can be beneficial in multi-sectors for being able to build a modern and developed country, producing lots of scholars in one sector would cause unbalance in human resources. In the same way, to produce much more educated persons in a country, the higher education system using in this country needs to be qualified inclusively and accessibly. In our country, the Republic of the Union of Myanmar, the education system is being reformed for tertiary level under the leading of the present government for the purpose of letting all citizens to learn inclusively and accessibly to be the graduated persons. This research paper has an attempt to investigate into the educational reform for tertiary level in Myanmar towards inclusive and accessible quality higher education. The main aim of doing this research is to monitor and evaluate the educational reform that is being done by the current government can attain the inclusive and accessible quality higher education as a small-scale research. This research took four weeks. In this research, there were five participants from Higher Education Sector in Myanmar were involved as the targeted population or sample. This research was conducted through analytical approach by making observation and interviewing as research tools. Data was collected and analyzed with the qualitative method. The outcomes from this research show that most of the reforming sectors in higher education system in Myanmar are initiated to inclusive and accessible quality higher education to more extent. In brief, all outcomes will be supportive for further research related to higher education.*

Keywords- Analytical Approach, Educational Reform for Tertiary Level, Inclusive and Accessible Quality Higher Education, Interviewing

Introduction

It is true that human resources in a country play an important role to develop this country. Otherwise, HR or human resource is the foundation to build a modern and developed country. Human resources in this country need to be well-qualified for building such kind of a country. In the same way, one of the major productive areas of human resources, it is required to upgrade educational sector consistently with the international norms so that it can be breast with the internationals. Furthermore, there has a close relation between development power of a country

and the developmental force of human resources of this country. In order to sustain such forces, the education system of this country is necessary to be reformed with norms and values of education system. With the aim of developing human resources, Myanmar's education reform began in 2011 when the country's government system changed from a military government to the public government. Now the new civilian-led government is having a great attempt to set up the modern and well-qualified society with the adequate and precise policies and plans. Among them, it is vividly seen in reforming sectors being done by the civilian-led government. Of all these reforming sectors, the reforms related to education system becomes the driving key for going towards a new modern and developed country that can cooperate with regional and global organizations. Generally, education provides individuals with the opportunity to improve their lives, become successful members of their communities and actively contribute to national socio-economic development.

In Myanmar society, education is traditionally valued as a key determinant for social mobility and it is widely recognized as a critical building block for nation building, national unity and sustainable development. Thus, as the national priority, the civilian-led government is endeavoring to do the reforms of education system in Myanmar from the beginning of the Basic Education System to the Higher Education System by the National Education Strategic Plan (NESP) (2016-2021). This research paper has an attempt to investigate into tertiary level educational reform in Myanmar towards inclusive and accessible quality higher education. The general objective of this study is to monitor and evaluate the educational reform that is being done by the current government can attain the inclusive and accessible quality higher education as a small-scale research through analytical approach. The specific objectives of this study are to observe tertiary level education in Myanmar, monitor tertiary level education reform in Myanmar being done by civilian-led government, and evaluate tertiary level education reform in Myanmar being done by civilian-led government into inclusive and accessible quality higher education as a small scale research through analytical approach. It took four weeks. It was conducted through analytical approach. Data resulted from this research was collected and analyzed with qualitative method. Findings from this research will be supportive for further research related to higher education.

Research Questions

- ✓ How do we observe tertiary level education in Myanmar?
- ✓ How do we monitor tertiary level education reform in Myanmar being done by civilian-led government?
- ✓ How do we evaluate into tertiary level education reform in Myanmar being done by civilian-led government into inclusive and accessible quality higher education as a small-scale research through analytical approach?

Rationale

- To observe tertiary level education in Myanmar
- To monitor tertiary level education reform in Myanmar being done by civilian-led government that can decentralize in decision making and so on
- To evaluate into tertiary level education reform in Myanmar being done by civilian-led government into inclusive and accessible quality higher education as a small-scale research through analytical approach

Significance of the Study

This study emphasizes on tertiary level education reform in Myanmar being done by civilian-led government consistently with National Education Strategic Plans (NESP) (2016-2021) under National Education Policy (2015) towards inclusive and accessible quality higher education. This study has a focus on distance education and its reforms and consequential benefits, and conventional education and opportunities for learning such kind of education being supported by all universities, institutes and colleges, and local schools in Myanmar.

Literature Review

According to Wallace& Pockington (2002), the actors who play a major role in the educational change make the educational reform more complex even though they are not intended to be. The wants of individuals and groups who are in the educational reform can be varied depending on their particular goals .and the past experiences. According to Wallace(2004),the process must involve dialogue between stakeholders based at different public service levels wherever a change

is initiated centrally, or at a regional system level, for implementation at a more local level'. Though this dialogue between stakeholders positioned differentially within the system does not take place systematic change. Furthermore, concerning Fullan (2001), the problem of meaning is central to making sense of education change. He suggested that the state holder must complete both the small and the big pictures in order to achieve greater meaning. He presented that the small picture concerns the subjective meaning or lack of meaning for individuals at all levels of the educational system. Fullan also mentioned that educational change after all is a sociological process. Carr-Chellman (1999) stated systematic change as the interrelationships and interdependencies among the parts of the educational system with the consequence that desired changes in one part of the system are accompanied by changes in other parts that are necessary to reach an idealized vision of the whole. Hence, he referred to a systemic change as to recognize the interrelationships and interdependencies between the educational system and its community, including parents, employers, social service agencies, religious organizations and much more, with the consequence that all stakeholders are given active ownership of the change effort. OECD-DAC (2002) defines monitoring as "the ongoing, systematic collection of information to assess progress towards the achievement of objectives, outcomes and impacts," and it defines evaluation as "the systematic and objective assessment of an ongoing or completed project, program policy, its design, implementation and results, with the aim to determine the relevance and fulfillment of objectives, development efficiency, effectiveness, impact and sustainability."

Research Methodology

Sample

In doing this research, five higher academic staff from English Department, Yangon University of Education were requested as the sample or targeted population.

Instrumentation

As the research tools, observing and interviewing were used in this research. Five higher academic staff, five participants were interviewed based on thirty items related to higher education reform being done by civilian-led government and the opinions on conventional education and distance education towards inclusive and accessible quality higher education.

Research Procedure

There are three steps in the research procedure. They are as follow:

Observing Higher Education System in Myanmar

In Myanmar, tertiary level education has been regarded as higher education. Higher level education has experienced a large expansion since 1988 but it has been ranked as one of the globally lowest for the universities. The student's protest in 1996 and 1997 caused universities to be closed for another 3years. The Ministry of Education administers all higher education in Myanmar. The Ministry of Education implements short and long-term education development plans to improve quality, access and diversity of education.

The government envisions higher education as an avenue for empowering people to make educated decisions and capitalize on economic opportunities in Myanmar and therefore, foresees investment in education as a fruitful investment for the people of Myanmar. Universities in Myanmar remain highly centralized and state- run. In Myanmar, there are two kinds of higher education: conventional education and distance education. Students can study conventional education from all colleges, institutes and universities specialized in Arts and Science, Computer, Technology, Education and other professional studies Student enrollment in conventional universities including Arts and Science, Computer and Technology from 2016 to 2018 was 569,999. Universities offer bachelor's degree programs, master's degree programs and doctorate degree programs. The higher education system follows a 4-1-3 year program with 4 years for a bachelor's degree, one year for qualifying classes and 3 years for master's degree. In addition to conventional higher education, there are two branches of the department of Higher Education- one for Lower Myanmar and the other for Upper Myanmar. The branches are responsible for the administration and coordination of Higher Education in Myanmar. There are 163 higher education universities.

All of the universities are state-funded with a funding for higher education for a fiscal year. The Ministry of Education provides and operates two distance learning universities for learning universities for students who cannot attend conventional university from the remote areas. University of Distance Education, Yangon in lower Myanmar was established in 1992 and

University of Distance Education, Mandalay in Upper Myanmar was established in 1994. Student enrollment in two Universities of Distance Education 2016 to 2018 was 863,774. Comparing the student enrollment per year from University of Distance Education to those from other colleges, institutes and universities, the number of students who enroll the two universities of distance education (Upper and Lower Myanmar) are more than those in other high education institutes. There are 19 available disciplines offered by these universities. Students can transfer credits from conventional universities to Universities of Education and vice versa. The Universities of Distance Education use modern technology to facilitate learning.

By using Satellite Data Broad casting System, distance education lessons can be transmitted to learning centers that are located most conveniently for students. . In fact, distance education is like a bridge between the educational life and the vocational one. Furthermore, distance education is the main stream for pursuing higher education and earning for life at the same time. In brief, distance education can be regarded as the inclusive and accessible quality higher education The Ministry of Education established the National Centre for Human Resource Development to provide students with more flexible options for higher education. The centers create vocational, technological, and professional courses to meet students ‘demands. University entrance derives from students’ tenth grade standard examination marks. The Ministry of Education runs the Matriculation Exams which are annually held at the same time around the country. About 300,000 students take the matriculation exam each year. Some universities set a minimum exam score for students’ acceptance in the university. Minimum scores vary depending on the university, but medical schools demand the highest scores.

Monitoring Tertiary Level Education Reform in Myanmar

With the vision of creating the education system which can generate a learning society capable of facing challenges of the Knowledgeable Age, building a good education system is a long-term process. The Myanmar Government is implementing short-term and long-term plans to improve the country’s education system. As the educated population and workforce are demanding economic growth and poverty reduction, the Myanmar Government has made many efforts to strengthen the education sector. Since 2011, the civilian government led by the former President made nation-wide reforms particularly in the education sector to upgrade human resources. The newly democratic government of Myanmar which was formed in March 2016 has made the

overhauling of the education system as a national priority with the purpose of meeting the increasing need for human capital. In Myanmar, the Ministry of Education (MoE) is the main provider of education.

The MoE formulated the Special Four-Year Education Development Plan from the 2000-2001 Fiscal Year to the 2003-2004 Fiscal Year (FY) to develop the education sector and to strive for the development of highly qualified human resources. In addition, in 2001, as a long-term plan, the Myanmar government set up the 30-year Long Term Basic Education Plan (FY 2001-02 to FY 2030- 2031) to be implemented in six phases five year education. The 30-year Long-Term Education Developmental Plan contains 10 programs for the basic education with the purpose of promoting greater access to and the quality of basic education and 36 programs for the higher education and contributes to national development and endeavors the preservation of national identity and culture. The plan aims to inspire creativity and analytical thinking among students to encourage them to have the desire to learn. According to the plan, all subjects and disciplines are being reviewed as well as new assessment techniques are being administered to test the students depth and breadth of knowledge associated with critical thinking skills to replace the old assessment techniques of rote memorization and fact regurgitation. A large task of Thirty-Year Long-Term Education Development Plan is to change teaching methodology in higher education from teacher-centered approaches to learner-centered approaches such as project-based learning, problem-based learning and fieldwork. However, it can be seen that there are four major challenges facing higher education. These challenges are that the traditional centralized model of governance needs to be substituted with a more corporate model that focuses on performance, accountability and autonomy, Myanmar's higher education system needs significant improvement in terms of quality-related dimensions such as curriculum, learning environment, research and teaching processes, issues of affordability and accessibility both impact access to higher education. Support programs are needed to help students to overcome cost barriers for higher education and Myanmar's higher education institutions need to improve their research capacity in order to foster the development of new ideas and innovations.

Much progress is being achieved by the Myanmar Government's Education Reform Progress since it has been in operation for six years. For example, the government has a commitment to a sustainable increase in the overall education budget since 2011. The government expenditure on

education in fiscal year 2015-2016 was four times that of fiscal year 2011-2012. This rapid rises in government. Now the civilian-led government is endeavoring to develop the basic education sector, in the same ways, the role of higher education is being upgraded by doing reform in all sectors based on National Education Strategic Plan (NESP) (2016-2021) due to National Policy (2015). In 2017-2018, the government spent MMK 228, 348,82 for Higher Education. In detail, the government used MMK 2,998, 447 to administer higher education and management, MMK 30, 248,83 to improve the quality and consistency of Higher education, MMK 88,417,357 to expand the equal opportunities for learning education as well as MMK 106,684,163 to implement National Education Strategic Plan. In brief, in Myanmar, the Education Management Information System (EMIS), run by the Ministry of Education, is responsible for supplying the education sector with comprehensive, shared, accurate and up-to-date information for planning, resource allocation, and monitoring and evaluation to support decision-making.

Evaluating tertiary level education reform in Myanmar into inclusive and accessible quality higher education as a small-scale research through analytical approach

Through analytical approach, it can be seen that tertiary level education reform in Myanmar that is being done by civilian-led government is moving towards inclusive and accessible quality higher education To begin with, in Myanmar, there are two kinds of tertiary level education: the first one is Conventional Education that is obtained from Arts and Science Universities, Science and Technological Institutes, Educational Colleges and Universities as well as the Distance Education that is delivered from Yangon University of Distance Education and Mandalay University of Distance Education. Every student who has passed the Matriculation Examination can learn his suitable education and choose any college, institute or university depending on his interest, his scores obtained from Matric Exam or the economic background of his parents. Every citizen in Myanmar can access higher education inclusively after studying basic education from the respective High Schools. Now the civilian-led government is striving for tertiary level educational reform being implemented in accordance with the National Education Strategic Plan (NESP) (2016-2021). One of the most significant reforms related to higher education reform is that some responsibilities of both Universities of Distance Education from Upper and Lower Myanmar have been allocated to all Arts and Science Universities. As a result, both universities

can reduce their responsible tasks and they can open human resource development (HRD) courses such as computer training courses, language proficiency courses and so on more than before. Vice versa, each Arts and Science University has more rights to provide more effective teachings to students in its own ways. As other reforms, in Yangon University, Yangon University of Foreign Languages and Dagon University in Lower Myanmar as well as in Mandalay University and Mandalay University of Foreign Languages, HRD courses can have been more opened to produce qualified and effective human resources. Furthermore, the civilian-led government invested finance at most for reforming higher education to set up educational infrastructure by opening new Arts and Science, Education, Science and Technological Colleges, Institutes and Universities in remote areas so that every citizen not only in urban areas but also in remote areas can study quality higher education inclusively and accessibly. It has earlier been mentioned in above sections, higher education is very fundamental need to for a country's social and economic development. Furthermore, higher education is responsible for nurturing skilled human resources needed in government. Higher education institutes (HEIs) are incubating innovative and creative thinking for globally and economically competitive society. In order to sustain economic growth and compete in global economy, the civilian-led government is doing transformational shift in higher education by three complementary and linked strategies and programs in National Education Strategic Plan (NESP) (2016-2021).

Data Collection and Data Analysis

The data obtained from interviewing based on thirty items, is collected and analyzed with qualitative research method. All interviewing questions are related to higher education reform being done by civilian-led government and the opinions on higher education system: conventional education and distance education towards inclusive and accessible quality higher education which was given to my participants from Yangon University of Education, most of my colleagues agree that not only conventional education system but also distance education system is good for all classes of society in Myanmar. In addition, they can be beneficial for developing human resources. And also, they can give us the sustainable life insurance. They can be supportive for flourishing human resources in different sectors. They have produced several graduated persons serving duties of our nation. Both of them can create job opportunities for people in Myanmar. In the same way, most of them think that distance education can be accessed

by all citizens at different ages in Myanmar and it is like a bridge between educational life and vocational one. And also, distance education is the key for seeking both education and earning for life at the same time. Distance education is the main stem for pursuing higher education by saving time and money. Online learning system of distance education is very useful for all learners who cannot attend day-classes at universities. Generally, distance education can bring inclusive and accessible higher education. Some suggest that distance education should be more improved than before. But, some disagree that distance education can be regarded as the qualified educational system in Myanmar. All my participants deeply welcome the reform related to tertiary level education including distance education reform in Myanmar that is moving towards inclusive and accessible quality higher education. Most universities welcome to workshops and seminars related to higher education system being encouraged by the civilian-led government. Besides, most of them think that the civilian-led government should find out the better ways to inclusive and accessible quality higher education as well as the National Education Strategic Plan (NESP) (2016-2021) initiated by the civilian-led government can be powerful inclusive and accessible quality higher education. They think that all universities in Myanmar via distance education system should have autonomy for conducting inclusive and accessible quality higher education system. They also think all agreements and proposals laid down due to National Education Policy should be implemented as well as all universities and institutes in Myanmar should do cooperation with International Institutes. Their responses also inform that not only all universities and campus in Myanmar should be highly upgraded to be breast with Internationals but also all universities and campus should be places for students to learn real life situations.

Findings

Due to the analysis of the data obtained from the research conducted by observing and interviewing through analytical approach, the tertiary level educational reform that is being implemented by civilian-led government consistently with National Education Strategic Plan (NESP) (2016-2021) for higher education drawn by National Education Policy (2015) is moving towards inclusive and accessible quality higher education to some extent. Because this plan is an ongoing process, the reform for higher education will be able to be implemented owing to three strategies and techniques based on relevant program components mentioned in NESP.

Furthermore, according to opinions of my participants from interviewing questions based on tertiary level education reform that is being implemented by civilian-led government, tertiary level education reform not only for conventional education but also for distance education is valuable for all classes of society in Myanmar. In addition, they can be beneficial for developing human resources. So this reform can lead to inclusive and accessible quality higher education. Due to expected outcome 2021, the strengthened governance and management by officials from the Ministry of Education, line ministries and managers of High Education Institutes will be able to improve access to quality higher education. Non-academic staff can deliver effective administration. Academic staff will deliver effective teaching and undertake quality research. Regardless of their socio-economic background, students not only from urban areas but also from remote areas can have equitable access inclusively and accessibly to the quality education provided by Higher Education Institutes.

Discussion

Similar to the opinions of my participants that I have earlier mentioned above, it is thought that the civilian-led government should find out the better ways towards inclusive and accessible quality higher education as well as the National Education Strategic Plan (NESP) (2016-2021) initiated by the civilian-led government can become the driving force towards inclusive and accessible quality higher education. All universities in Myanmar via distance education system should have autonomy for conducting an inclusive and accessible quality higher education system. In accordance with all agreements and proposals laid down due to National Education Policy, all universities and institutes in Myanmar should do implementation and cooperation with international institutes. Besides, not only all universities and campus in Myanmar should be highly upgraded to be breast with Internationals but also they should be the places for students to learn real life situations. In addition, it is my belief that tertiary level educational reform will be able to be more implemented in 2021 owing to expected outcome of NESP in 2021.

Conclusion

In Myanmar society, education is traditionally valued as a key determinant for social mobility and it is widely recognized as a critical building block for nation building, national unity and sustainable development. This education system should be standardized with the international

norms so that the higher educational level of this country can be upgraded and reformed to be the better system. Now the civilian-led government is striving for education reform from basic level to higher level by setting up National Education Strategic Plan (2016-2021) as the national priority. In this research, the tertiary level educational reform being done by civilian-led government was observed, monitored and evaluated as a small-scale research through analytical approach in order to investigate into the tertiary level educational reform whether it is moving towards the inclusive and accessible quality higher education. The outcomes from this research have revealed that the tertiary level educational reform is moving towards the inclusive and accessible quality higher education to some extent due to some limitations to do this research in collecting data related to student enrollment to colleges and universities in remote areas for 2019. Nevertheless, this reform will be more implemented towards the inclusive and accessible quality higher education in future because it is an ongoing process according to expected outcome of NESP in 2021. In brief, all findings and discussion from this research will be supportive for further research related to higher education.

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Papers



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Internationalisation of Higher Education in Industry 4.0

Internationalization of Higher-Education in Industry 4.0

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***Abstract:** Industry 4.0 is the significant era of revolutionary automation, massive data exchange and global knowledge connection – in which, “connection” is considered one of the most important factors. The movement of internationalization is going to play a very important role for universities and colleges in the Industry 4.0 – the era of connection. Through a comprehensive analysis on the operation of internationalization and global affairs in big universities of the region, including FPT University, Vietnam, this presentation aims to elaborate on the different forms of internationalization of higher education institutes, especially student exchange and student mobility programs.*

Keywords: internationalization, student mobility, industry 4.0

Internationalization of Higher Education

In the recent years, the aspect of internationalization in higher education institutes have been considered one of the most important features globally. Even though the idea of internationalization is not new, it just has been conceptualized significantly during the 20th and 21st century. According to Knight (1994), due to the dominant fast paced globalization after the 1980s, internationalization affect higher education institutes in a variety of ways, in which it had been playing a very different role for each of them. Another argument from Teichler (2003) is that the reason for the varied concept of internationalization comes from the fact that the researchers’ works very much reflect the values of the higher education institutes that they work with or are financially supported by, which means that each higher education institute tends to bring their own concept of internationalization of higher education into the mutual picture.

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Nevertheless, internationalization of higher education has somewhat a set of core values and models that it revolves around, even when the ways and forms of internationalizing a higher education institute can be diverse. Tripathi and Bajpai (2017) pointed out that some of the most ancient universities which are located in India had received students and lecturers from all over the world, especially from Africa and Asia since 500 BCE, which is probably the soonest internationalization of higher education is recognized. In the 20th and 21st century, internationalization activities can generally be categorized as in exchanging students and lecturers between institutes (Coates, 2014), implementing international courses with globally recognized curriculum, co-hosting events, researches and courses within a international network of higher education institutes or between two institutes as education partners (Knight, 2014).

As mentioned earlier, internationalization can have a variety of forms and it plays a very different role for each higher education institute. This is because each stakeholder in the process of internationalization of higher education also plays a very different role and can, at the same time, benefit in different ways when participating in the process of internationalization. Individual analysis can work on the differences in gender, age, family profile, personal preferences and academic achievements of students and faculties in order to clarify such benefits. Students can benefit from participating in a study abroad program under a student exchange agreement basis, in the sense of developing global competencies, international and multicultural adaption, together with developing the ability to live independently. At the institution level, the role of internationalization relies on the educational model, discipline and management, which is generally created from the mission and vision that the institute initially determined. According to Huang (2014), at the national and regional levels, the process of internationalization is affected by the characteristic of the country or region, such as traditions, culture, population size, development level, economic status and political situation.

Student exchange and student mobility

One of the most commonly known and also commonly mistaken in the various forms of internationalization is student exchange. This program is often initiated under a cooperation

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partnership or agreement between two higher education institutes, or within a platform or network among institutes that encourage and promote the act of exchanging students in a region, such as ASEAN or Asia-Pacific. Student exchange agreements basically allows institutes to send and receive an equal amount of student to study abroad for a duration between a semester to two years with no tuition fee, which generally become a common practice.

However, another form of internationalization in terms of sending and receiving students is becoming more practical and common among higher education institutes, which is student mobility. This form of internationalization program can be considered a better option as it helps solve known difficulties in the traditional way of student exchange by offering more flexibility in the amount of student being sent and received, in the fields and method of approaching and implementing learning modules and activities, as well as more choices in terms of students' academic and personal background, and more flexible duration of mobility programs. Credit bearing availability along with traveling and cultural exploration are also good reasons for students and institutes to gradually shift from the traditional model of student exchange to student mobility.

Trends of student mobility

First of all, student mobility can be considered initially a tool of connection. As the level of globalization and internationalization is a critical feature for an institute, the act of internationalization is more and more emphasized among institutes. At the institutional levels, student mobility is an effective and efficient, simple way to connect with other institutes and initiate partnership in a variety of education fields such as joint research, faculty exchange, double degree and articulation implementation. At the individual level, students and lecturers also have better chance to connect more with individuals at the same level on a bigger scale. Connecting to a new culture and its working environment enables students to enrich their skills set and enrich social capitals. It also allows receiving institutes to diversify their academic environment as their own students have the opportunity to interact and coordinate with international mobility students in classes, events and workshops.

Student mobility is also a tool for diplomacy among countries and regions. A number of policies and movements have been made throughout recent years in order to promote and encourage student mobility among countries and regions, in order to eventually enhance the relationship among themselves, as the quality and tendency of student mobility is greatly affected by the relationship and partnership status between countries and vice versa. Some significant policies in Asia-Pacific are Super Global University program in Japan which nominates 36 big universities across the country to promote internationalization by financially funds their students plan to study or work abroad as interns; New Colombo Plan (NCP) in Australia which funds local students with the total amount of 5 million AUD every year for short term study program in Asia-Pacific regions; New South Bound policy in Taiwan which promote its university to boost cooperation and partnership generation to that of the countries in the South, namely South East Asia countries, Australia and New Zealand.

Another major trend of student mobility is that even when developed countries are more often considered an ideal destination for settling down and developing a career, in terms of living condition and economic development status, such programs often take place in the direction of from developed countries to developing countries. The reason is that developing countries are considered to have better learning opportunities, such as the acknowledgement of faster paced development with several movements and changes. Developing countries also offer a more diverse culture experience and more global working environment, in addition to lower living cost which altogether enable student mobility programs to take place in such direction more often.

Student mobility and internationalization in Industry 4.0

Industry 4.0 is a revolution whose potential is expected to create opportunity for human beings to innovate more greatly by partnering human strength and technology (Deloitte, 2018) and in fact has reshaped all aspect of the industry through coordinating IT world with the education associations and all higher education institutes. As a matter of fact, the movement of internationalization and globalization of higher education is also affected by the fast paced movements of the Industry 4.0, some of which is as of mentioned above, such as the trend of

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mobility from developed countries to developing countries that allow students to experience a more diverse learning environment.

The major four principles of Industry 4.0 are defined as interconnection through internet of things (IoT) and internet of people (IoP); information transparency; technical assistance by comprehensive information visualization and physical tasks support; and decentralized decision-making system. That affect the process of internationalization of higher education in the following ways: the theme and topic of internationalization programs, connection among stakeholders and institutes, and the overall ecosystem that they create altogether.

Even though in a conceptional point of view, internationalization and globalization in education is not new, as originally higher education has its own global characteristics even before the time of nations concepts – it is not significantly distinguished until the 21st century and its Industry 4.0 revolution. It is continuously shaped and re-shaped by the change and development of technology and innovation, especially in communication technologies, which greatly enable individuals and organizations of connect and communicate under a more variety of platforms and in a much faster manner.

In order to stay relevant in the continuous development and effect of Industry 4.0 on the society, the institutes need to equip their students not only with the academic excellence, but also experimental experience that can only be acquired through a inclusive experience. Student mobility allow students to not only enhance their skills set and get exposed to a international environment, but also equip relevant knowledge on technology – the one factor that considerably change how people approach and handle situations in a professional and advanced business environment.

Challenges and opportunities for student mobility

Industry 4.0 has created important changes in the way higher education institutes work on their own curricula and the process of internationalization. Needless to say these changes have been generating difficulties and obstacles for higher education institutes and students in initiating and

participating in these programs, including student mobility. The institutions have to continuously renovate their strategies based on their values that are traditionally established very long ago, along with their curricula and teaching methods. The students and institutes are also required and expected to acquire a complex set of knowledge and more importantly skills to be able to adapt to any workplace and environment. Student mobility programs also have to renovate themselves in order to stay in the big picture.

However, this is also a big opportunity for higher education institutes to position themselves internationally through student mobility to diversify themselves. The Industry 4.0 also affect internationalization of higher education institutes in the way they are monitoring and facilitating student mobility programs, e.g. virtual mobility and embedded online learning. The need for cross-country and multicultural learning along with exposure to new technology had been increasing faster than ever, which requires institute to organize and facilitate study abroad programs for their students as well as receive international student on such topics. Moreover, there is a certain need for institutes and agencies to organize mobility learning programs for lecturers and faculties on technology, as well as research on information transparency, internet of things, big data and so on.

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Papers



Ms. Fang Xiaoxiang

**Teacher Education Regionalization in ASEAN Region: An Analysis
based on FOPA Model**

Teacher Education Regionalization in ASEAN Region: An Analysis Based on FOPA Model

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Abstract: Under the background of ASEAN Community construction, the internationalization of education and the revitalization of teacher education, ASEAN region is actively promoting the regionalization of teacher education. This article uses Jane Knight's Functional, Organizational and Political Approach Model (FOPA Model) as a conceptual framework to study regionalization of teacher education in ASEAN region. The study shows that functional, organizational and political approaches are applied with multiple actors in the process of revitalising teacher education. Alignment of higher education systems, like Teachers Competency Framework, and collaborative programmes, like Southeast Asian Pre-service Teacher Exchange Program are the functional approaches. The organizational architecture includes ASEAN, SEAMEO, AUN, AsTEN and so on. The political will of regionalization is embedded in the declarations, agreements, or summits of ASEAN Education Ministers Meetings, SEAMEO meetings, etc. Finally, the study analyzes ASEAN Way of cooperation in the field of teacher education from a social constructive perspective.

Keywords: ASEAN, teacher education, regionalization, FOPA Model

Introduction

The importance of teachers and teacher education has substantially increased in the past two decades. With the progressing of globalization and internationalization, teacher education which heretofore have been discussed mainly within the framework of individual nation states is now faced with the prospects of global and international transformation. One example is that *Prospects*(2012), edited by International Bureau of Education (IBE-UNESCO), published an issue “Internationalization of teacher education” in 2012, focusing on how current internationalization processes were transforming teacher education. The upgrading of teacher education requires higher education actors, especially tertiary teacher education institutions, to take important roles in fostering qualified teachers. As a result, the internalization of teacher education is accompanied by the internalization of higher education.

Recent years witness the advancement of regionalization of higher education, with

Europe being the first and most advanced region for illustration. Higher education regionalization becomes an interest for researchers (Knight, J., 2012 & 2016; Kuroda, K., 2016; Klecha-Tylec, K., 2017; Dang, Q.A. 2017, etc.). “Higher education regionalization refers to the process of building closer collaboration and alignment among higher education actors and systems within a defined area or framework called a region” (Knight, J. 2012). When it comes to the specific area of teacher education, realistically there are intentional efforts to promote closer collaboration within a region, including mapping tertiary teacher education quality assurance, constructing teacher competency framework and increasing pre-service and in-service teacher mobility and so on. This paper will probe into the regionalization of teacher education in ASEAN region, which is comprised of 10 countries in Southeast Asia: Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam, for the purpose of providing a landscape of teacher education cooperation within this region.

Three factors urge teacher education in this region to adjust itself to the new trend. Firstly, the ASEAN Community construction drives closer people-to-people connectivity with the help of education promotion.

“Enable greater mobility amongst the region’s youth as they shape the future of ASEAN community by 2040 – through such schemes as an internship visa free scheme, student scholarships, and student exchanges. Greater interaction amongst the different nationalities of youth in the region certainly builds strong connections and through the sharing of knowledge can spark a robust exchange of ideas that can lead to greater collaboration to grow their countries and ASEAN as a region.” (--ASEAN Vision 2040)

Teacher education cooperation in the ASEAN region will equip teachers with stronger ‘we feeling’, ‘ours feeling’, and ‘we are together’, which would help create greater communal identity amongst the people of ASEAN.

Secondly, regionalization and internationalization is one of the quality indicators of higher education institutions. Tertiary teacher education institutions in ASEAN region also realize that it is important to interact with neighborhoods and distant relations. There is a belief that the quality of teacher education programs and research is strengthened through sharing of capacity building and good practices. With the building of ASEAN Higher Education Area, which may be referred to as “the harmonization of higher education (Yavaprabhas, S. 2014)”, currently regional cooperation and alignment of teacher education systems is becoming increasingly important, but not excluding other international relationships. The *ASEAN Work Plan on Education 2016-2020* set a sub-goal of providing capacity-building programs for teachers, academics and other key stakeholders in the

education community. One of the activities is to conduct comprehensive, multi-level, and wide-ranging exchanges and cooperation.

Thirdly, the revitalization of teacher education in ASEAN region demands closer collaboration among teacher education stakeholders. In response to the rapid change in education in the region, Southeast Asian Ministers of Education Organization (SEAMEO) has deployed several practices in education and human resource development. SEAMEO Council announced Southeast Asian New Education Agenda 7 Priority Areas in 2014. The fifth priority is “Revitalising Teacher Education”, whose purpose is “Making teaching a first choice profession through comprehensive, strategic, and practice-based reforms of teacher management and development systems through more professional preparation at pre-service and in-service processes, following an explicit and shared teacher competency framework and a set of standards applicable across the region”(SEAMEO, 2018). SEAMEO and other regional organizations take the lead in promoting collaboration of teacher education within this region.

According to Jane Knight, regionalization is “an intentional process, a desire to build on what is already happening within the region and move beyond an ad hoc situation of cooperation to a more planned approach” (Knight, J., 2012). Though her definition and analytic model are made in the context of higher education in general, they are applicable in analyzing cooperation in teacher education, since higher education systems take greater responsibility of teacher education all around the world. There is now a trend of teacher education regionalization in ASEAN region. This paper will apply Jane Knight’s FOPA model as a conceptual framework to analyze this trend, and explore the characteristics of this process.

Conceptual Framework--FOPA Model

Figure 1 presents Jane Knight’s FOPA Model, where the three interrelated approaches to the regionalization of higher education, namely the functional approach, the organizational approach and the political approach, constitute the core of the framework. The model concentrates on the process of facilitating closer collaboration and alignment among higher education institutions, actors, networks, and systems within a designated area or framework (Jane Knight, 2016), and has been applied in the analyst of higher education regionalization in Africa and Asia.



Figure 1 FOPA Model (Source: Knight, J., 2012 & 2016)

The first approach—*functional*—focuses on the practical activities of higher education institutions and systems. Corresponding initiatives include two distinct groups: alignment of systems and collaborative programs. The first group relates to strategies, which facilitate closer alignment, or in some cases, harmonization among national/sub-regional higher education systems such as quality assurance, academic credit system, and qualification. The second category includes programs such as student mobility schemes, cross-border education programs, open education resources, and centers of excellence.

The second approach is called *organizational*, and refers to a diversity of networks and organizations evolving to develop and guide the regionalization initiatives in a more systematic manner, which include government and non-government bodies, professional organizations, foundations, and networks. They assume such responsibilities as policy making, funding, research, capacity building, regulation, and advocacy among others.

The third approach, the political approach, helps to launch major programs or funding schemes and to formalize higher education initiatives. Declarations of intent, binding conventions, treaties, agreements, and special meetings like summits or policy dialogues are instruments for generating political support and visibility in order to make regionalization of higher education a priority. The political approach can be characterized as having more of a top-down, formal, and intentional orientation.

These approaches work in unison complementing and reinforcing each other, while in practice sometimes conflicting priorities or politics can cause tension among the three approaches. At any one time, one approach could be more dominant than another but, ultimately, there needs to be progress on all three to ensure sustainability (Knight, J., 2016).

Teacher Education Regionalization in ASEAN Region

With the growing need for qualified teachers, teacher education is becoming an important part of regional education plan. FOPA model, developed in the context of higher education internationalization and regionalization, is applicable in analyzing the current initiatives which further the regionalization of teacher education in ASEAN region. The examples in Table 1 show that the ten nations in this region have made significant progress on all three approaches. It should be noted that not all regionalization initiatives are included, and the listed ones are at different stages of development with various degrees of sustainability.

Table 1 *Regionalization of Teacher Education in ASEAN Region*

Approach	Examples from ASEAN Region
Functional	<p>Alignment of Systems</p> <ol style="list-style-type: none"> 1) Credit Transfer Systems 2) Quality Assurance 3) Teachers Competency Framework <p>Collaborative Programs</p> <ol style="list-style-type: none"> 1) Intra-ASEAN Student Exchange Programmes 2) The Southeast Asian Teacher Project (SEA-Teacher Project) 3) Project Teacher Exchange for ASEAN Teachers (TEACH) 4) Gearing Up Responsible and Outstanding Teachers in Southeast Asia for the 21st Century (GURO21)
Organizational	<p>Organizational Architecture</p> <ol style="list-style-type: none"> 1) Association of South East Asian Nations (ASEAN) 2) ASEAN University Network (AUN) 3) Southeast Asia Ministers of Education Organization (SEAMEO) and its regional centers 4) The Association of Southeast Asian Teacher Education Network (AsTEN) 5) ASEAN Council of Teachers (ACT)
Political	<p>Political Will</p> <ol style="list-style-type: none"> 1) Southeast Asian Ministers of Education Organization Meetings--<i>SEAMEO Education Agenda 2015–2035 (7 Priority Areas)</i> 2) ASEAN Education Ministers Meetings--<i>ASEAN Work Plan on Education 2016-2020</i>

1. Functional Approach

The alignments of systems belong to the first group of the function approach, which help to ensure the harmonization among national or regional higher education systems. Specifically, the following three initiatives contribute to the closer alignment of teacher education in ASEAN region.

(1) Credit Transfer Systems

The credit system is supposed to reflect the number of classes attended as well as other academic requirements fulfilled by students. In order to facilitate student mobility and to harmonize the system in order to have comparable and transferable credits, a credit transfer system is taken into consideration in the ASEAN region. Regional harmonization of teacher education and increasing transnational tertiary pre-service teacher mobility also require a functional credit transfer system.

There are two main credit transfer systems coexisting: ASEAN Credit Transfer System (ACTS) developed by AUN and Academic Credit Transfer Framework (ACTFA) by SEMAEO Regional Institution of Higher Education and Development (SEAMEO-RIHED). Through the adoption of ACTS grading scale in which student learning outcomes would be ranked into five subgroups from A (excellent) to E/F (fail), host universities would provide students a “Certificate of Completion” signed by the AUN-ACTS Secretariat as well (AUN Secretariat, 2019; Sujatanond, 2016). As ACTS is only applicable for AUN institutions, SEAMEO-RIHED is developing a new credit transfer scheme ACTFA for all higher education institutions in Southeast Asia, in order to harmonize existing credit transfer arrangements (SEAMEO-RIHED, 2019). The ACTFA presents a framework with a set of tools meant to measure the amount and magnitude of educational values in each institution.

(2) Quality Assurance

The two most recent key regional initiatives for the ASEAN countries relating to quality assurance are ASEAN Qualifications Reference Framework (AQRF) and ASEAN Quality Assurance Framework (AQAF). They have in recent times become key reference points for the member states to reflect on their qualification structures and associated quality assurance arrangements. But they are considered to be too general to accommodate the needs of teacher education institutions in ASEAN region. A model of quality assurance specifically addressing teacher education institutions is called for and is now under discussion (Sundayana, W., Hamied, F.A. & Ali, M., 2017).

(3) Teachers Competency Frameworks

Teacher education researches, forums and summits abound to track the performance of teacher education systems and determine the competencies of teachers as well as school heads.

In 2010, the Southeast Asian Ministers of Education Organization Regional Center for Educational Innovation and Technology (SEAMEO INNOTECH) conducted a survey of teaching competency standards, paying particular attention to systems of developing, implementing, assessing, and monitoring the standards (SEAMEO INNOTECH, 2010). Based on the research findings, *Competency Framework for Southeast Asian School Heads* was issued in 2014, and *Southeast Asia Teachers Competency Framework* in 2017. These frameworks contribute to the alignment of teacher education in this region.

The second group of functional approach includes the programs that promote the mobility of pre-service and in-service teachers, and collaboration programs of teacher education curriculum.

(1) Intra-ASEAN Student Exchange Programmes

With the purpose of building a common higher education space, the ASEAN countries are making efforts to increase the number of intra-ASEAN international students. There are two main projects underway, the ASEAN International Mobility of Students (AIMS) and the AUN Student Exchange Programme. The former has been at the core of SEAMEO RIHED's educational programmes, aiming to create a vibrant student mobility programme for citizens of all SEAMEO member countries. The latter program promotes the ASEAN student mobility of students at both undergraduate and graduate level among AUN Member Universities by providing scholarships to students to study at AUN Member Universities for a certain period of time or full degree programme. Students from teacher education institutions are also included in these student exchange programmes.

(2) The Southeast Asian Teacher Project (SEA-Teacher Project)

In order to fulfill the priority area of “Revitalising Teacher Education” issued by SEAMEO, SEAMEO Secretariat has embarked on The Southeast Asian Teacher Project (SEA-Teacher Project) since 2015. Also known as the Pre-Service Student Teacher Exchange Southeast Asia Project, the project aims to provide opportunities to pre-service student teachers, majoring in math, science, English, and preschool education, from universities to obtain teaching experiences (practicum) in schools in other countries within the region. The practicum period lasts one month, during which the students' roles and responsibilities are assigned weekly (observe, assist in teaching, teach, and reflect). This project aims to enable students to develop their teaching and pedagogical skills, to practice their English skills, and to gain broader regional and world views.

(3) Project Teacher Exchange for ASEAN Teachers (TEACH)

The Project Teacher Exchange for ASEAN Teachers (TEACH), initiated by Philippine Normal University, aims to create an ASEAN Teacher Education Forum for international

cooperation and academic exchange that is deeply rooted on ASEAN culture (Agustin, M.L.& Montebon, D. Roy T., 2018) . Project TEACH hopes to broaden ASEAN teachers' experience and understanding of the challenges of actual teaching and learning from an international perspective. The Project TEACH international teacher training program is a four-week rigid teacher training program that is designed to help the participants from other ASEAN member countries in their English Language Proficiency (ELP) and Pedagogical Knowledge (PK).

(4) GURO21 Project

Gearing Up Responsible and Outstanding Teachers in Southeast Asia for the 21st Century (GURO21) is a menu of short course packages of SEAMEO INNOTECH, designed to enhance the capabilities of teachers on 21st Century skills as they meet the demands and challenges of the time. Based on *Southeast Asia Teachers Competency Framework*, this project offers two foundation courses that focus on *facilitating the development of 21st century skills* and on *developing higher order thinking skills*, each composed of two self-learning modules in print, CD, and Web format.

2. Organizational Approach

The second approach is called the organizational approach because some structures, associations or networks are necessary to help establish and oversee regional-level and intra-regional initiatives in a more systematic way. Among these organizational architectures, ASEAN, AUN, SEAMEO and its regional centres play most important role in higher education and teacher education regionalization. They have not only assumed a variety of responsibilities, such as policy making, funding, research and capacity building, but also undertaken an impressive number and diversity of projects to create a stronger frame of collaboration among the member states in ASEAN region. Regionalization introduces the process of intentionally building connections and relationships among teacher education institutions and teacher associations. As a result, the ASEAN Teacher Education Network (AsTEN) is founded in 2015.

AsTEN, now called the Association of Southeast Asian Teacher Education Network, is a network of premier teacher education institutions in ASEAN region where members are expected to help and support one another as they work together in addressing issues, challenges and concerns relevant to teacher education programs, practices and policies. This network also serves as a vehicle for various forms of collaboration that result to greater cooperation and understanding among ASEAN nations as they initiate efforts that will benefit nations and peoples (from *Concept Note on the Establishment of AsTEN*) .

Actually, since ASEAN was founded as an organization of the five Southeast Asian countries, leaders of teachers association in ASEAN countries thought over the possibility of forming an organization with a view to enable them to foster concepts and aims of ASEAN, especially on the field of education and culture. Therefore, the ASEAN Council of Teachers (ACT) was founded in 1978. ACT aims at further promoting closer relationship between teachers in ASEAN countries (from *ACT Background*).

3. Political Approach

The third approach is labeled the political approach and helps to formalize teacher education regionalization initiatives. The political wills of intentional cooperation in the field of teacher education are reflected in the meetings organized by ASEAN, such as ASEAN Education Ministers Meeting and ASEAN Senior Officials on Education, and SEAMEO and its regional Centres, including SEAMEO Council Conference, High Officials Meeting, Centre Directors Meeting of the SEAMEO Centres. Two important strategic plannings generating political support for teacher education regionalization are SEAMEO's 7 Priority Areas (2015-2035) and ASEAN Work Plan on Education(2016-2020).

(1) Seven Priority Areas (2015-2035)

SEAMEO Secretariat conducted a study on the foresight of education in Southeast Asia. Based on the results of the study, SEAMEO Education Agenda (2015–2035), summed up as 7 Priority Areas, was put forward in 2014. In the session of the Ministerial Round Table Meeting, SEAMEO Council endorsed the seven Priority Areas of SEAMEO, which includes: Achieving universal early childhood care and education; Addressing barriers to inclusion; Resiliency in the face of emergencies; Promoting technical and vocational education and training; Revitalising teacher education; Harmonizing higher education and research; and Adopting a 21st Century curriculum.

In 2016, SEAMEO listed the implementation timeline (2016-2020) of Priority 5 “Revitalising teacher education” and is now endeavoring to develop Southeast Asian Regional Standards for Science and Mathematics, to institutionalize Easy Teach Programme, to increase pre-service and in-service teacher mobility and to promote high official policy dialogue on Teacher Education Reforms and Innovations in SEA countries. The task of promoting Southeast Asian Teacher Competency Framework has been fulfilled in 2017.

(2) ASEAN Work Plan on Education (2016-2020)

The ASEAN Work Plan on Education (2016-2020) was endorsed by ASEAN Senior Officials on Education and adopted by the ASEAN Education Ministers Meeting in 2016. The plan includes eight sub-goals with different numbers of priority areas, focusing on

cross-sectoral initiatives and opportunities related to education. The eighth sub-goal “Provide capacity-building programs for teachers, academics and other key stakeholders in the education community.” pays special attention to teachers and teacher education. It reflects the member countries’ resolution to strengthen cooperation on teacher education in ASEAN region by identifying projects and activities in the next five years.

Characteristics of ASEAN Teacher Education Regionalization

The expansion in the number of teacher or teacher education networks, the growth in intra-regional pre-service and in-service teacher mobility, the new emphasis on regional teachers competency framework, and the rise in joint education programs are testimony to the growing importance of regionalization of teacher education in ASEAN region. The regionalizing process, joined by many stakeholders, is based on shared views and values within this region and is going to further strengthen a sense of regional identity. This process is not to reach a one-size-fits-all standards, but to explore points of connection in teacher education in diverse Southeast Asia.

Education is the main support expected by the ASEAN Socio-Cultural Community (ASCC). ASCC Blueprint 2025 advocates building towards a creative, innovative and responsive ASEAN. One of the strategic measures is to “encourage regional cooperation in the areas of education, training and research...” (ASCC blueprint 2025, P19). Teacher education cooperation is based on a true sense of unity, not taking advantage of each other but considers each other’s welfare. Intra-regional teacher cooperation will contribute to the region-building.

From a social constructive perspective, regions are socially constructed and reconstructed by collective action of both states and peoples. Region-making manifests in the processes of regional identity formation. Diverse groups of actors develop their regional consciousness and commonality by creating shared norms (Dang, Q. A., 2017). The norms are known as “the ASEAN Way”, which are characterized by respecting the different systems in member states and adopting regional interactions that emphasize informal and non-legalistic procedures, flexibility, discussions, negotiations and the search for consensus. Teacher education regional cooperation is conducted in this way. With repeated interactions and socialization, the interests of member states will be transformed in favor of the collective good. This, in turn, heralds much stronger regional cooperation and the building of regional identity.

Conclusion

This paper sought to broaden the understanding of regionalization of teacher education in ASEAN region by investigating approaches applied in this process. Three approaches were identified and analyzed: functional, organizational and political. All three approaches are embedded in the norms and processes of interactions among teacher education stakeholders within the ASEAN region. Teacher education regionalization can be considered as a mechanism for ASEAN to reshape the global teacher education landscape. Countries in this region work together to revitalising teacher education. This not only helps them to foster high qualified teachers, but also help building regional identity.

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Papers

Prof. Dr. Philipp Pohlenz

Math Matters (?!)

**Student Attrition and the Role of Cognitive and “non-cognitive”
Learning Goals in Higher Education**

Math Matters (!?)

Student attrition and the role of cognitive and “non-cognitive” learning goals in higher education.

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Abstract: Among the many strains of debate on higher education reform, the question how to balance better the disciplinary knowledge, and cognitive competencies on the one hand, and more generic soft skills on the other, remains being disputed. Particularly in STEM (science, technology, engineering and mathematics) study programs it is often argued that the necessity of delivering sound disciplinary foundational knowledge outweighs the need to dedicate curricular spaces to the training of “non-cognitive” learning goals. Student attrition which is particularly high in STEM study programs is attributed to students’ underperformance in mathematics and not to the need to readjust higher education organization to changing demands of its target audiences. The paper presents empirical findings from student surveys that have been performed at German universities and that addressed the determinants of student attrition. The results suggest that performance in mathematics is a relevant predictor for student attrition, but at the same time the “softer” aspects of university life, play an equally important role for the explanation of students’ intention to give up university. Entrepreneurship education is discussed as a relevant concept for student-centered learning and which could serve as a means to uplift students’ self-efficacy which turns out to play an important role as a determinant of student attrition.

Keywords: student attrition, self-efficacy, entrepreneurship education, mathematics grades

Background

As a consequence of massive growth, higher education institutions need to be prepared to accommodate a more heterogeneous student population with increasingly diverse learning needs and backgrounds. Having turned from an elite into a mass education system, higher education today attracts more than the half of age cohorts in many countries (OECD 2019). The growth of student numbers and the diversity of their learning needs is challenging higher education institutions and individual teachers in many ways. Student attrition has become a major problem for many study programs, particularly in fields like engineering and sciences (or generally in STEM disciplines). In the (public) debate on reasons for student attrition (and the effectiveness of higher education respectively), universities are confronted with the argument that they are not

[1]

sufficiently adaptable to changing societal demands, such as processing rather pedagogical tasks (e.g. sensitivity to heterogeneous learner needs) instead of pursuing a purely academic and research-related mission. One of the reactions to such allegation from the academia itself, typically is the claim, that students are not well prepared to enter study programs at university level upon completion of school education (Zaher & Damaj 2018; Post et al. 2010; Bas et al. 2017). Student attrition in many cases is attributed to student traits (such as low motivation and insufficient cognitive capacity or their heterogeneity which results in uneven starting conditions at the early stages of study programs) than to ineffectiveness of the university's provision.

Higher education policy responds to such developments by requesting universities to adapt to the apparent changes of the higher education landscape. For instance European and Asian frameworks like the *Standards and Guidelines for Quality Assurance in the European Higher Education Area* (Standards and Guidelines 2015) and the *ASEAN Quality Assurance Framework* (AQAN 2016; Niedermeier & Pohlenz 2016) determine not only procedural aspects of higher education quality assurance systems, but also give advice regarding relevant properties of an up to date higher education which is characterized by student or learner centeredness and the appreciation of real world learning experiences and a balance of cognitive and generic skills (or “life skills”).

Research Questions

However, since there apparently is a great deal of struggle within universities (and between universities and their public audiences and stakeholders respectively) as to how far universities would need to reshape their educational provision and to adapt to changing learner needs and societal demands, the question arises, if the “non-cognitive” elements of higher education (such as soft skills, creative and entrepreneurial thinking, but also social integration into the academic learning environment) do actually make a difference and help lowering the risk of student attrition. The respective quarrel is virulent, particularly in rigorous STEM disciplines where the academic culture values the function of higher education as a safeguard for rigorous academic standards very high. Among these standards, high performance in mathematics is of utmost importance since it creates the basis for professional acting in the respective disciplines. Student failure in mathematics is thus often used as justification for the selective nature of STEM programs and high student attrition rates. In the context of the above outlined discourse, the question becomes relevant if “*math is all that matters*” or if voices that call for a broader understanding of what higher

[2]

education is qualifying for in modern societies and how the respective educational aims are best achieved, deserve more attention. Evidence in this field could help guiding universities in their attempts to rethink their educational mission and to balance better between cognitive and generic skills.

Theoretical Framework and Research Design

The present study is theoretically framed by the seminal work of Tinto (1975) on determinants of student drop-out. Tinto suggests that student attrition is among others a function of the university's (sociological) properties (such as its ability to integrate students in academic learning and working environments) and psychological traits of the students (such as self-efficacy). Both of which interact, meaning that for instance a covariation of a low student self-efficacy on the one hand and a rather competitive than cooperative "social climate" on the other would increase the probability of student drop-out to occur.

The present study draws on this argument and assumes that students' cognitive abilities (conceptualized here as *performance vs. underperformance in mathematics*) are a relevant but not exclusively explanatory predictor of student attrition. Instead, a more comprehensive explanatory model for the phenomenon of student attrition would have to include the above mentioned organizational properties and individual traits.

Provided these "non-cognitive" aspects yield explanatory power, it would be necessary to analyze them in-depth in order to understand what features of higher education would have to be strengthened to achieve the goal of preventing student attrition. The concept of entrepreneurship education (Gautam & Singh 2015) is helpful in this respect, since it responds to the above mentioned calls for reform movements towards a stronger student centeredness of higher education.

There is a huge body of literature on entrepreneurship education and on the different schools of thought that have emerged over the last decades (e.g. Kuratko 2005). For the present study the assumption that the concept of entrepreneurship education goes beyond its function to train future business people on how to create ventures most effectively, is significant. In contrast, in the present context the concept of entrepreneurial education implies that (higher) education *in general* should serve the purpose to contribute to the creation of entrepreneurial personalities in the broadest sense of the word. Entrepreneurial personalities are characterized by their willingness to pursue

innovation in order to solve relevant problems, to think “outside the box”, to be influential and inspiring, to be able to work independently and at the same time embedded in cooperative networks, etc. (Gibb 1993). Thus, we understand the concept and the formats of entrepreneurial education as a potential source of inspiration for universities that are seeking for ways to include generic or “non-cognitive” competencies to their educational provisions in the context of the call for higher education’s increasing student-centeredness and the demand to align higher education with societally desired generic learning outcomes and competencies. The concept of entrepreneurship education to our understanding is a well-fitting framework for the present study and is comparable to other teaching concepts aiming at activating students, such as student engagement (Larmer & Ingamells 2010).

In order to address the outlined research questions, the presented analyses followed a two-step approach. Firstly, we analyzed to what extent student attrition can be predicted by cognitive skills (*performance in mathematics*) as compared to “non-cognitive” aspects (social integration, self-efficacy, motivational aspects). For this purpose, we fitted a logistic regression model to survey data that were taken from 1,846 first year students of six German universities (all of which located in the German Federal State of Saxony Anhalt¹). Logistic regression was appropriate since the dependent variable was modelled as a dichotomous categorical variable (“*Are you planning to give up university?*” / yes = 1, no = 0). As explanatory variables (i) an indicator of student heterogeneity (*traditional vs. non-traditional students*, meaning that the former completed their A-levels (German “Abitur”) at school as the “classical” university entrance certificate and the latter acquired alternative educational credits, such as vocational education, prior to university enrolment), (ii) indicators of the performance at school (overall grades of the university entrance exam and the respective scores in mathematics, and (iii) predictor variables of personal traits were included stepwise in three different regression models (table 1). The predictor variables (model 3) were coded as Likert scales ranging from 1 (“do not agree” / “do feel burdened” / “not at all applicable”) to 5 (“do fully agree” / “do not feel burdened at all” / “fully applicable”).

¹ The higher education landscape of this particular Federal State is characterized to a large extent by technical universities. Study programs in areas such as laws, arts, etc. where mathematics is not part of foundational competencies, are rather marginal in number. Thus, since STEM disciplines are dominating the higher education scenery, the debate on the relevance of performance in mathematics is an important issue in the respective higher education system.

Secondly, we investigated if students' appraisal of higher education's properties in the area of generic competencies (or more specifically: entrepreneurial skills) are significantly associated with students' personal traits (self-efficacy). The aim of this analysis was to detect aspects of higher education organisation that could be further developed or emphasized stronger, in order to encourage students' (academic) personality development.

For this purpose, we performed linear regression (OLS) models. We investigated, which features of higher education related to the attainment of both cognitive and generic competencies (such as social climate, consulting services, opportunities to perform research projects, etc.; table 2) can significantly predict students' self-efficacy (which was measured by the questionnaire item "*sometimes I'm worried if I will be able to complete my study program*" on a Likert scale, ranging from 1 ("not at all applicable") to 5 ("fully applicable") and serves here as an indicator for students' ability to cope with challenges and demands they encounter as novices in the academic learning environment).

The respective data were taken from another survey that was implemented among students that had already passed their first year at university and thus could provide first retrospective assessments of their university entrance phase. These data were only available from one of the six universities that had taken part in the former survey study. The number of students that responded to the questionnaire was 774.

Results

Firstly, we assess the outcomes of the logistic regression models. Table 1 displays the results of the three models that were estimated. The first model includes only the constant and an indicator for the heterogeneity of the student body ("*traditional vs. non-traditional students*") in order to capture the ongoing debate on negative effects of student diversity (as a source of insufficient math skills) on student learning achievements. Apparently, there is a slightly higher probability for "non-traditional students" to drop out of university as compared to those having been awarded the classical university entrance certificate (the respective predictor shows a statistically relevant value of .257 in model 1). However, in both of the more comprehensive models (models 2 and 3), this predictor loses its explanatory power in favor of the other included predictor variables.

The measures of the overall model fit suggest that model 3 fits the data best. Its -2LL value has decreased for about 28% as compared to model 1 and for about 22% as compared to model 2. The

number of correctly predicted cases (correct prediction of the number of cases of students that intend to give up university under the influence of the predictor variables included in the model) has increased at the same time from 67% (model 1) to 73% (model 3). This means that the model that includes both, variables on performance in mathematics and on “non-cognitive” aspects yields the best results and explanatory power (also the R² value of model 3 is the highest with .229 for the Nagelkerke estimator). From this we can conclude that performance in mathematics is a strong, but not an exclusively explanatory predictor for student attrition (coefficient of the “math performance variable” in model 2: .218) and that other sources of variation need to be considered when trying to explain this phenomenon: when controlling for predictors that relate to “non-cognitive” aspects of university life, the predictive power of the achieved grades in mathematics is even dispersing.

	Model 1	Model 2	Model 3
Constant	-.774***	-1.379***	-1.154
traditional vs. non-traditional student	.257*	.118	-.058
overall grades in university entrance exam		.094	.014
math grades in university entrance exam		.218***	.119
“studying is fun“			-.461***
“I’m worried if I can complete my studies“			.246***
“I’m burdened with examinations“			.120
“School prepared me well for university“			-.160*
“I’m getting along well in university“			.224***
“There are huge differences between school and university“			-.007
“I feel stressed“			.235***
correctly predicted cases (%)	67	68	73
-2 Log Likelihood	1969.016	1813.238	1411.071
Nagelkerke’s R ²	.004	.021	.229
no. of included cases	1.558	1.461	1.300
missing	288	385	546
Total	1.846	1.846	1.846

[6]

Table 1: Logistic regression model outcomes

Among the predictor variables that inform about “non-cognitive” aspects of university life, the question, if studying is fun turns out to be the most powerful predictor (-.461): the more students perceive their studies as enjoyable, the lower is their willingness to drop out. However, such indicator could be misleading, since what is perceived as “funny” or enjoyable, varies a lot from person to person or is in other words subjectively distorted. In contrast, measurements for e.g. students’ self-efficacy (“*I’m worried if I will manage to complete my studies*”) are accepted and well tested as indicators for the respective construct (e.g. Sherer et al. 1982; Bandura 1997). In the presented regression model, self-efficacy plays develops statistical significance: the more students agree to the statement that they are worried concerning their ability to complete their studies (which would indicate a low level of self-efficacy), the higher is their risk of dropping-out (.246). As a first conclusion of these results one could state that universities that are interested in preventing their students from dropping out of their studies should not only take care of the question how to uplift their performance in mathematics. Universities should also take account of measures that help bettering student self-efficacy. Thus in a second step of analysis, we will take a closer look at those aspects of university life that have an influence on the respective individual traits of the students.

We performed multiple linear (OLS) regression modelling for this purpose. The estimated model (independent variable: “*I’m worried if I will manage to complete my studies*”) indicates that 27% of the variance in the self-efficacy indicator is explained by the included predictor variables ($R^2 = .265$, $F = 5.27$, $p < .01$, No. of observations = 776). Table 2 displays the standardized regression coefficients (β) and the T-statistics estimators of the included predictor variables.

The predictors that were included to the model were chosen because they relate to the concept of entrepreneurship education which will be discussed later on as a means to reshape higher education towards a stronger student-centeredness as requested by the above-mentioned higher education frameworks (ESG, AQAF). The entrepreneurship education concept goes beyond factual knowledge in the field of setting up ventures. In contrast, it aims at the development of entrepreneurial personalities, with a broad understanding of what “entrepreneurial” means. In the present context, we understand entrepreneurial as attributes like self-confident, independently and critically thinking, actively and effectively communicating, etc.

[7]

All of which are not only qualification goals of entrepreneurship education but also of higher education as such. Thus we see a strong connection between the two concepts and that the former could be inspiring the latter more. Specifically, the chosen predictor variables in the presented model draw on (i) (generic) competencies that students acquire in order to solve problems independently and to communicate effectively (items [1] – [8]); (ii) social embeddedness and integration (items [9] – [13], and items [18] – [19])) which is according to Deci’s & Ryan’s theory of self-determination (Ryan & Deci 2000) a predictor for motivational aspects and the willingness to perform well; and (iii) (cognitive) competencies that students acquire in order to master actual tasks in (research) projects (items [14] – [17]).

	stand. regress. coefficients (β)	T-value
Constant		4.776
[1] “I can reproduce central concepts of the discipline I study.”	.028	.360
[2] “I can solve problems with the help of scientific methods.”	-.206***	-3.000
[3] “It is easy for me to ask, whenever I don’t understand s.th.”	.106	1.545
[4] “I’ve learnt things in the past year at uni. that enthuse me”	-.085	-1.063
[5] “It’s easy for me to cooperate with others.”	.037	.573
[6] “I can submit my own verbal contributions comprehensible.”	-.139*	-2.047
[7] “It’s easy for me to establish contacts with other students.”	.114	1.481
[8] “It’s easy for me to build working groups with students.”	.092	1.263
[9] “I feel there is a lot of competition among students.”	.248***	3.910
[10] “Whenever I have a problem, I will find help.”	.077	1.062
[11] “I can identify with the discipline I study.”	-.166*	-2.271
[12] “In my study program, there is a pleasant ‘social climate’.”	.006	.092
[13] “There are opportunities to relate to teachers.”	-.110	-1.482
[14] “There are opportunities to implement research projects.”	-.161(*)	-1.906
[15] “The courses have reference to research”	.148(*)	1.911
[16] “There are opportunities to collect practical experiences.”	.121	1.507
[17] “The courses have reference to practical application.”	.010	.121
[18] “I’m well counselled by professors.”	.014	.163

[8]

[19] “I’m well counselled by teaching staff.” -0.050 -0.636

Table 2: linear regression (OLS) model outcomes, standardized regression coefficients (β)

The statistical significance of most of the predictors is surprisingly low. However, those predictors that are significant support the argument of the study: student self-efficacy is determined by the extent to which students feel they are able to apply scientific methods to problems (item [2]); and their ability to communicate effectively (item [6]). It is lowered if they feel the social climate to be rather competitive instead of cooperative (item [9]) and it increases with a higher level of self-identification with the academic discipline they are studying (item [11]). Finally, the way in which research (as the central activity of academic “entrepreneurs”) is addressed in teaching processes does have an impact (items [14], [15]²): the more teaching is based on research results, students are likely to report concerns regarding their ability to complete studies. Vice-versa, they feel these concerns, the fewer the opportunities to implement research projects of their own, are. This could be interpreted as intimidation of students by *teaching* that is based on complex cutting-edge research on the one hand and as a lack of comprehensible research-based *learning* or the opportunity to apply theoretical knowledge to their own research ideas on the other hand.

In turn one could say that a high level of self-identification; proper acquisition of generic *and* cognitive (methodological) competencies; and a cooperative learning environment would help uplifting student self-efficacy which on its part is apparently a meaningful concept for the explanation of student attrition, as the logistic regression model has brought about.

Discussion

The results of the presented analyses support both arguments that are competing in the debate on student attrition: performance in mathematics is a relevant predictor of student success (particularly in STEM disciplines) and at the same time other aspects, namely the learners’ and the learning environment’s “soft properties” do have an equally important impact.

Most probably, both of the concepts interact, in the sense that a learning environment that is placing emphasis on a productive social climate and that opens opportunities for independently exploring

² Both of the items [14] and [15] slightly violate the convention for statistical significance of a maximum p -value of .05 by producing p -values of .058 for item [14] and .057 for item [15]. Nonetheless, both items seem to be worth being discussed here, since they provide meaningful information on research as part of higher education concepts.

research questions that matter for the students, could contribute to an uplifting of students' performance in the "tough disciplines" like mathematics. Though such further-reaching issue cannot be pursued within the scope of the present study, the presented results can benefit universities that are interested in addressing the pressing issue of student attrition anyway. They provide valuable indications of strategies for higher education reform: application-oriented or research-led learning formats have been debated for the last couple of decades. A plethora of examples for good practices in order to implement undergraduate research in the day to day teaching and learning process exists (e.g. Felten et al. 2016; Guterman 2007; Kuh 2008; Lopatto 2003; Russell et al. 2007) and could inspire individual teachers but also those being responsible for the further development of curricula.

Self-identification with the academic discipline has also been an issue of investigation in recent years (e.g. Smyth et al. 2013). Respective findings suggest that a positive self-identification with the discipline promotes the acceptance of social norms of that discipline and a deep learning approach (ibid.).

All of these features of tertiary learning are strongly related to the concept of entrepreneurship education as we understand it in the present context. Universities should seek ways to promote their students' capacities to become entrepreneurs of their own academic and professional careers. Providing opportunities for deep level learning and practical research experiences could serve as guiding principles for the implementation of a student-centered higher education.

Some notes on the limitations of the presented models need to be made, nonetheless. The model fit of all models is satisfactory. However, large shares of the variance in the dependent variables remain unexplained. Apparently, there is room for further elaborations of the theoretical and empirical models. Secondly, the independent variable in the logistic regression model is potentially flawed in the sense that it does not measure actual attrition or student drop-out, but instead the reported intention of students to give up university. This is the best possible proxy indicator when using the available data, however, the potential subjective distortion needs to be considered when basing decisions for further developments of higher education programs on such data. Thirdly, the sample consists of freshmen in their early stages of university learning. The reason for this choice was that the share of student drop-out is highest in the early phases of study courses. At the same time, the fact that mostly younger students were sampled may explain the low explanatory power of the predictor variables included to the linear regression model which would require having

collected more experiences in order to be able to make a more informed judgement on the respective constructs. However, the presented results are able to provide at least heuristic indications that could inspire both, the future development of teaching practice and further research in the field of student attrition and the determinants of study success.

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Papers



Dr. Jannet M. Anit

**Research and Development in Selected Higher Education
Institutions (HEIs) in Calabarzon Region: Issues and Challenges**

Research and Development in Selected Philippine Higher Education Institutions (HEIs) in Calabarzon Region: Issues and Challenges

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Abstract: This paper is focused on the identification of the current issues and challenges in the conduct of research activities in selected Colleges and Universities in the CALABARZON Region of the Philippines. It also covers assessment of the current practices, guidelines and policies and the research priorities and activities in HEIs including sources of funding, research linkages, research utilization, publication and dissemination. In this study, quantitative and qualitative research design were used and the Friedman test was used for testing the difference between several related samples. Based on the results of the study, majority of the HEIs research thrust or agenda is focused on engineering and technology innovation. The number of completed faculty research is low and most research outputs are disseminated in faculty colloquiums, conferences and seminars in professional associations. Most HEIs have experienced difficulty in applying patents and other intellectual property (IP) due to limited funds and lack of support. Moreover, the top most issues and challenges facing R & D administrators in HEIs are the intensification and implementation of research agenda, management of limited budgets and utilization of research outputs. Thus, to motivate faculty members to conduct research of commercial value, it is recommended that research incentives, awards and grants be enhanced or institutionalized. Likewise, a technology and commercialization management framework for R&D outputs must be developed to serve as a guide in conceptualizing and writing institutional research policies, guidelines and strategies to strengthen the conduct of R&D in HEIs.

Keywords: Research and Development (R&D), Technology, Technology Transfer, Commercialization

Introduction

Higher Education Institutions (HEIs) play a vital role in the advancement of science and technology especially in educating highly qualified people, creating and disseminating knowledge for the advancement of different disciplines. However, researches developed by HEIs which could have contributed in helping and enhancing social and economic benefit seemed to have been neglected and undervalued. Based on a recent study, 63% of the research created is not

[1]

patentable, 27% for potential patentable and 10% is undetermined (IPI, 2016). The reasons for these could be due to lack of knowledge and understanding of Intellectual Property system, prevailing culture in the academe of publish or perish, no institutionalized mechanism to equip and assist innovators in protecting and promoting their technological innovations.

This study is focused on the assessment of the current state of research and development practices in selected Colleges and Universities in the Calabarzon Region. The main goal of which is to help enhance and improve the research engagement in HEIs that would contribute to better performance and exchange of knowledge and stronger linkage and collaboration with the industry sector. In terms of utilization, R&D outputs in the CALABARZON region were used as bases for student development and institutional changes or instructional improvement. Unfortunately, very few have benefited from the commercialization of research only 25% of which have been utilized (Ayala & Garcia, 2013). According to the report, the Region ranks first nationwide in terms of R&D expenditure ratio to gross regional domestic product in 2013 at 0.26 percent. The Region surpassed the National Capital Region with only 0.19 percent which ranked number one in 2011 (RDRA, 2018). This shows recognition of the Region on the importance of R&D activities to spur economic and social growth. However, this is still below the standard set by the United Nations Educational, Scientific and Cultural Organization (UNESCO) of one percent for R&D of developing countries (RDRA, 2018).

In addition, the findings of Fetalver (2010) on research utilization showed that there is a need to strengthen the scheme of effective communication or diffusion of research output as well as the need to monitor and evaluate research utilization. In this purview, this study was conducted focusing on the determination of the practices, issues and challenges encountered by the Deans, Research Directors or Heads of various engineering schools in selected HEIs in the CALABARZON Region. This will serve as an input in the development of a technology and commercialization management framework in order to properly integrate technology for business strategies and operations. This is to ensure that doing R&D in HEIs would result to greater benefits in terms of technology transfer and actual application and financial returns through effective technology and commercialization management.

Methodology

The primary respondents of the study were chosen from 28 selected private and public HEIs in the CALABARZON Region offering Engineering programs and other related courses. The HEIs were chosen as participants in the study since some of them are engaged in various research projects focusing on the advancement of knowledge for the industry, energy and emerging technology. The data were collected through the conduct of survey and interviews with at least two (2) HEI representatives in selected Universities and Colleges in the CALABARZON Region composed of Deans, Research Directors and Heads of the College of Engineering. Stratified sampling was used in classifying the type of respondents based on their institutional affiliations such as State Universities, Private Colleges and Private Universities.

In this study, a survey questionnaire was utilized and a four (4) point likert rating scale was used. The survey instrument pertaining to the best practices, the issues and challenges in terms of four parameters of R & D were measured using Cronbach's Alpha to determine if the scale has an acceptable internal consistency or reliability. Specifically, it aims to establish significant differences on the perception of the respondents concerning the issues and challenges they encountered in their respective institutions. Friedman test was used for testing the difference between several related samples. On the other hand a computer software known as Statistical Package for the Social Sciences (SPSS) was used in analyzing the gathered data.

Results and Discussion

Issues and Challenges on Research and Development

This section presents the issues and challenges encountered by the College Deans, Research Directors and Heads of the College of Engineering in terms of R & D priorities and relevance, funding and other resources, implementation, monitoring, evaluation and utilization, publication and dissemination of research and development.

Table 1 presents the summary of the issues and challenges encountered by the respondents in terms of research priorities and relevance. The study reveals that in Private Universities, the major issues and challenge is the intensification of the research agenda or thrust in the institution and it was rated 100%. This is followed by the alignment of Faculty researches based

on the institutional research agenda or thrust. While in State Universities, the challenge of intensifying the research agenda or thrust of the institution was also rated as the major issue and challenge and with a rating of 70%. In Private Colleges, the intensification of the institutional research agenda or thrust and the alignment of faculty researches based on the research agenda or trust of the institution were given a rating of 60%. Considering the Friedman test ($p = 0.016$), there is a significant difference among the three groups of HEIs concerning the issues and challenges they encountered. Interestingly, in Private Universities they did not encounter any issues and challenges regarding the policies and guidelines used for the conduct of team and interdisciplinary researches and other activities.

Table 1
Issues and Challenges Encountered Pertaining to Research Priorities and Relevance

ISSUES AND CHALLENGES	Private University		State University		Private Colleges		Mean Rank
	N	%	N	%	N	%	
1. Intensification of the research agenda/thrust of the institution.	8	100	7	70	6	60	7.83
2. Alignment of Faculty researches based on the institutional research agenda or thrust.	6	75	5	50	6	60	6.83
3. Alignment of students' researches based on the institutional research agenda	5	62.5	5	50	5	50	5.83
4. Linking the College/Program with the research center of the institution	4	50	5	50	3	30	4.50
5. Lack of research seminars, trainings and workshop for faculty	3	37.5	1	10	5	50	3.50
6. Lack of institutional policies and guidelines for team and interdisciplinary research.	0	0	4	40	3	30	2.67
7. Different policies and guidelines of Colleges/Department on the conduct of research	0	0	4	40	3	30	2.67
8. Lack of institutional policies and guidelines for the conduct of research activities.	0	0	2	20	3	30	2.17
<i>Fr = 17.182 Asymp. Sig. = 0.016</i>							

Table 2 shows the summary of the issues and challenges encountered in selected HEIs in terms of funding and other resources. The results of the study reveal that in Private Universities, 100% or all the HEIs in this group rated (80%) the lack of long-range programming for faculty and staff development to enhance research capability as a major issue or challenge. While in State Universities (80%) and Private Colleges (70%) they rated the problem of limited budget for

research programs and other activities as the main issue and challenge. The Friedman test ($p = 0.513$) shows that there is no significant difference among the three different groups of HEIs on the issues and challenges encountered in terms of research funding and other resources. As shown, limited budget for research programs and other activities is a common issue or challenge. This indicates that the budget allotted for the college of engineering for the conduct of research programs and other related activities is insufficient to support the conduct of faculty and student researches. Should the problem on proper planning and implementation of budget for research activities are properly addressed, the problem on remuneration may not be an issue. Generally, the respondents have a consensus that only when the researchers receive enough support and incentives for their work and contribution in their respective fields can there be a true attainment of quality research in the institution.

Table 2
Issues and Challenges on Research Funding and Other Resources

ISSUES AND CHALLENGES	Private University		State University		Private Colleges		Mean Rank
	N	%	N	%	N	%	
1. Limited budget for research programs and other activities.	5	62.5	8	80	7	70	7.50
2. Lack of long-range programming for faculty and staff development to enhance research capability.	8	100	5	50	5	50	7.33
3. Lack of externally funded researches.	5	62.5	4	40	4	40	7.00
4. Lack of available research facilities and equipment (internet, statistical software, ICT).	1	12.5	7	70	4	40	5.83
5. Lack of appropriate workplace/laboratory to facilitate research process.	3	37.5	7	70	2	20	5.67
6. Lack of established linkages with local, national and international agencies.	1	12.5	3	30	5	50	5.50
7. Lack of manpower support in the conduct of research by qualified faculty or consultant.	2	25	3	30	3	30	5.17
8. Lack of institutional policy and guidelines for research funding.	0	0	3	30	4	40	5.00
9. Lack of institutional policy and guidelines for research linkages.	0	0	2	20	3	30	3.17
10. Lack of supplies and materials.	2	25	0	0	3	30	2.83

Fr = 8.215 *Asymp. Sig. 0.513*

Table 3 presents the issues and challenges encountered in terms of research implementation, monitoring, evaluation, and utilization. The results of the study reveal that in Private Universities (62.5%) they rated the lack of institutional policy on plagiarism and the fabrication of data as a major issue or challenge. While in State Universities (80%) they rated the

problem that research results are not fully utilized as inputs in the transfer of technology to the community. While Private Colleges (100%) rated the problem about the limited budget for incentives given to faculty researches as a major issue and challenge.

The Friedman test ($p = 0.210$) shows that there is no significant difference among the three groups of HEIs on the issues and challenges encountered. It can be deduced that the non-utilization of the research results as inputs in the transfer of technology to the community is a common issue or challenge. The result of the study imply that the research outputs developed in HEIs are not fully utilized for public consumption. As discussed earlier, the results are indicative of the difficulties generally faced by the researchers in HEIs to fully utilize and optimize their research output. This is due to lack of provisions and guidelines to help facilitate the commercialization of research outputs, the lack of appropriate incentives in HEIs for commercialization applications, and the lack of linkages or opportunities for cooperation with other investors or agencies.

Table 3
Issues and Challenges on Research Implementation, Monitoring, Evaluation, and Utilization

ISSUES AND CHALLENGES	Private University		State University		Private Colleges		Mean Rank
	N	%	N	%	N	%	
1. Research results are not fully utilized as inputs in transfer to the community.	4	50	8	80	5	50	7.00
2. Limited budget for incentives given to faculty researches.	4	50	2	20	10	100	5.83
3. Lack of facilities/laboratory to facilitate the volume of research output.	3	37.5	4	40	4	40	5.50
4. Lack of institutional policy about plagiarism, fabrication of data and others.	5	62.5	2	20	2	20	4.67
5. There is no policy on Intellectual Property Rights (IPR).	4	50	0	0	4	40	4.17
6. Completed and on-going researches are not monitored and evaluated.	2	25	3	30	2	20	3.67
7. Researches of graduating students are not evaluated by a panel of competent professionals.	0	0	3	30	2	20	3.17
8. Lack of institutional policy and guidelines for research monitoring, evaluation and utilization.	0	0	1	10	2	20	2.00
<i>Fr = 9.632</i>		<i>Asymp. Sig. 0.210</i>					

Table 4
Issues and Challenges on Research Publication and Dissemination

ISSUES AND CHALLENGES	Private University		State University		Private Colleges		Mean Rank
	N	%	N	%	N	%	
1. Increase of income derived from research-related output and activities.	3	37.5	6	60	5	50	9.50
2. Limited budget for incentives given to paper presentation and publication.	4	50	2	20	6	60	8.50
3. Lack of new linkages and/or opportunities for cooperation with other agencies.	4	50	3	30	5	50	6.83
4. Research results are not disseminated for journal publication.	2	25	4	40	5	50	6.00
5. Research results are not disseminated for paper presentation.	2	25	3	30	5	50	5.50
6. Lack of support for publication in refereed journals.	1	12.5	3	30	6	60	5.33
7. Limited budget for incentives given to outstanding research and patented researches.	3	37.5	0	0	6	60	4.17
8. Lack of support for patent application	2	25	1	10	6	60	3.83
9. Lack of support to disseminate the research results to target client.	2	25	1	10	4	40	3.13
10. Lack of institutional policy and guidelines for the publication and dissemination of research results.	2	25	2	20	2	20	2.17
<i>Fr = 9.632</i>		<i>Asymp. Sig. 0.060</i>					

Table 4 presents the issues and challenges encountered in selected HEIs in terms of research publication and dissemination. The results of the study revealed that in Private Universities (50%) they rated the limited budget for incentives for paper presentation and publication activities and the lack of new linkages and/or opportunities for cooperation with other agencies as major issues and challenges. In State Universities (60%), they rated the increase of income derived from research-related output and activities as a major issue and challenge. While in Private Colleges, for them the major issue and challenge is on the limited budget for incentives given to paper presentation and publication; lack of support for publication in refereed journals; limited budget for incentives given to outstanding research and patented researches and the lack of support for patent application.

The Friedman test ($p = 0.060$) shows that there is no significant difference among the three groups of HEIs on the issues and challenges encountered. The result shows that most of the HEIs experienced lack of income or revenue from the research that were conducted, this is an

indication that an institutional policy and guidelines for research-related output and activities that could generate income for the institution is lacking. This may be attributed due to the lack of institutional funds to support the conduct of the projects to generate income and the lack of policies on linkages for external sources to support joint project collaborations.

In addition, the results also imply that the other issues or challenges in selected HEIs are the limited budget for incentives for paper presentation and publication. It is evident that the potential incentives for faculty researchers doing research presentation and publication are not given adequate financial support. Furthermore, the lack of new linkages and/or opportunities for cooperation with other agencies is a common issue or challenge in HEIs. This may be attributed due to lack of provisions and funds in order to support joint research activities.

Conclusion and Recommendation

Majority of the HEIs research thrust or agenda is focused on engineering and technology innovation. The study reveals that most of the administrators for research in selected HEIs are generally confronted with the same R&D issues and challenges. The number of completed faculty research was generally low and most of the research outputs were disseminated in faculty colloquiums, conferences and seminars in professional associations. Most of the HEIs have experienced the difficulty of applying for a patent and other intellectual property (IP) due to lack of training and limited funds and resources. However, the topmost issues and challenges confronting R & D administrators in HEIs were identified as follows: intensification and implementation of the research agenda, financial management of limited budgets and utilization of research outputs, and the increase of income derived from research-related output and activities. Hence, to motivate faculty members in conducting research of commercial value, it is recommended that research incentives, awards and grants be enhanced or institutionalized. In addition, to strengthen the functional linkages with private and government sectors and other associations in order to access resources for further development of R&D. This is to enhance better and stronger institutional collaborations.

Moreover, there is a need to develop comprehensive policies and guidelines for hands-on training on patent searching, patent application, promotion, commercialization and extension services program that will strengthen the platform of HEIs to promote and establish the local

research works of researches. Institutional policies and guidelines on the production and development of service program should be established so as to effectively create research and development centers that have socio-economic impact to the government and private sectors in the CALABARZON Region.

Likewise, a technology and commercialization management framework for R&D outputs must be developed to serve as a guide for the conceptualization and development of institutional research policies, guidelines and strategies to further enhance and strengthen the conduct of R&D in HEIs. Furthermore, to align the research agenda of HEIs into two research categories of CALABARZON – RDRA the technological innovations and breakthroughs with the six priority sectors of the region. This will guide and strengthen HEIs on the priority development areas that support economic development of the CALABARZON Region.

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Papers

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Internationalization of Higher Education in Lao PDR: Evidence from Public Universities

Internationalization of Higher Education in Lao PDR: Evidence from Public Universities

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Abstract: This paper is to investigate key rationales and strategies undertaken by universities in Lao PDR towards internationalizing their higher education. Official documents including policy papers, strategic plans, annual reports and information published by governmental agencies, universities, and domestic media coverage were collected, followed by qualitative interviews with twenty-three university stakeholders (vice-presidents, directors of international relations, academic affairs, faculty deans and academic staff) of four public universities in Lao PDR. The content of secondary sources and interview responses were analyzed and integrated to draw the overall conclusion which provides a better understanding of internationalization practices in Lao higher education. Findings reveal that the ASEAN Community is recognized as a key external driver for internationalization practices in Lao higher education alongside the internal rationales that are to keep pace with regional and international developments, enhance capacity-building and promote the national identity. The activities and initiatives undertaken by these universities as strategies for internationalization are manifested in promotion of staff and student mobility, cultural exchanges, joint-curriculum development, research collaboration, staff's qualification upgrading and professional development, and expansion of international linkage. To facilitate their internationalization practices; the international office is established as the university's central taskforce to develop international agendas and connect internal stakeholders to foreign institutions abroad and vice versa. Despite their strong commitments to internationalization, practices are still fragmented and ad hoc because of no separate plan for internationalization, heavy external reliance and lack of internal recognition. Implications for future development are also discussed.

Keywords: public university, internationalization of higher education, rationale, strategy, Lao PDR

Introduction

Internationalization is considered as the factor enabling regional cooperation and universities cooperation in Asia since the mid-1990s (Sugimura, 2012). That is witnessed by the rapid growth of academic and student mobility, international programs and research collaboration initiated under individual universities cooperation and regional networks. Countries and universities in the region have adapted their policies and developed international strategies to appropriately suit such

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changing contexts of higher education. There is no exception for Lao People’s Democratic Republic (hereinafter referred to as “Lao PDR”) – a landlocked country located in Southeast Asia.

The concept of internationalization presumably exists in Lao education since the country was under colonial rule. Its primary dimensions are the outflow of student mobility and acceptance of foreign experts and educators to teach and provide technical support in the country. After independence in 1975, Lao government has prioritized the education sector in the national development agendas. In addition, international academic cooperation is constantly expanded and developed in accordance with the country’s direction and foreign policy. Lao PDR had joined the Association of Southeast Asian Nations (ASEAN) in 1997, followed by National University of Laos (NUOL) joined in the ASEAN University Network (AUN). The country has committed itself to catch up with the ASEAN agendas and align its education development with those of ASEAN member countries ever since. The notable manifestation is the replacement of the examination system by the credit system in HE, which all universities and colleges have adopted and used the credit system since the 2000s (Nuoansavanh, 2010). Another is, as responding to the AUN’s work plan, NUOL incorporated staff and student exchanges, research collaboration, and information exchange in its strategic plan as key focuses for international cooperation (NUOL, 2001). These indicate that Lao universities are willing to engage in the evolving of regional and international HE development. Such engagement enables them to become more visible and seize opportunities to access resources and seek diverse sources of funding for institutional and human capacity building.

However, the trend of international cooperation today is increasingly preoccupied with commercialization and competitiveness. While economic advantages are increasingly dominant, less importance is given to international development cooperation and capacity building initiatives with the institutions of developing nations (Knight, 2013). Therefore, this paper is to investigate rationales and strategies undertaken by Lao universities towards internationalizing their higher education. This will enhance the understanding of how higher education institutions (HEIs) in Lao PDR have adapted and developed international strategies to benefit from international cooperation.

The paper first analyzes the influence of the ASEAN Community on Lao education policy. Then, it discusses the meaning of internationalization and rationales driving Lao universities – National University of Laos (NUOL), Champasack University (CU), Souphanouvong University (SU), and Savannakhet University (SKU) – to internationalize their higher education. Activities and initiatives covering teaching and learning, research, staff development and international

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linkage undertaken by these universities as strategies for internationalization are examined. Finally, the paper looks at changes in institutional management to carry out international missions.

Influence of the ASEAN Community on Lao Education Policy

The establishment of the ASEAN Economic Community (AEC) in 2015 has increased the competition, needs for harmonization of higher education and demands for a trained workforce to cope with the newly integrated socio-economic context (Ratanawijitrasin, 2015). HE is then acknowledged as one of several catalysts in accelerating ASEAN's economic, political and socio-cultural development agenda (ASEAN, 2015). The AEC has significantly influenced the development of HE in Southeast Asian nations, including Lao PDR. As a result, the latest national education plan of Lao PDR – the 8th Education Sector Development Plan (ESDP) for 2016-2020 – emphasized all Lao citizens have equitable access to quality education to meet the needs of the country's socio-economic growth and be integrated into and compete with labor force within ASEAN member countries (MOES, 2015). In addition, it was noted that the current plan clearly places importance on international activities, compared to prior ESDPs.

Under the 8th ESDP, international cooperation is promoted with the aim of improving teaching-learning outcomes and enabling HE to contribute to society (MOES, 2015). Many activities are prioritized as strategies for international cooperation, namely staff and student exchanges, joint-curriculum development, research collaboration, and expansion of educational partnerships. These activities indicate that Lao PDR has responded to the needs for the harmonization process of HE in the ASEAN region. They clearly reflect the country's openness and commitments to catch up with the regional and international development, and outcomes of the national education reform during 2006-2015. In this regard, education reform is recognized as an effort to internationalize higher education, which results in the revision of policies and international cooperation strategies. This is because international academic cooperation is fundamental to strengthening and building of higher education system in Lao PDR (Knight, 2013). Recently, foreign universities (e.g. FPT University from Vietnam) were permitted to collaborate with local private HEIs to jointly offer undergraduate programs for Lao students and also to set up an overseas branch campus (e.g. Soochow University from China) in Lao PDR.

Meaning, Rationales, and Strategies for Internationalization

Internationalization is interpreted differently by individuals, institutions or countries pragmatically based on their purpose. Internationalization is defined as “the intentional process of integrating an international, intercultural or global dimension into the purpose, functions and delivery of post-secondary education, in order to enhance the quality of education and research for all students and staff, and to make a meaningful contribution to the society” (de Wit et al., 2015). This suggests that internationalization acts as a change agent in the institutional practices to enhance quality, inclusion and social responsibility of HEIs.

Rationales explain why universities are interested in and embrace internationalization. Individual institutions have their own rationales guiding internationalization practice. Rationales at the institutional level include international profile and reputation, quality enhancement/international standard, income generation, student and staff development, networks and strategic alliances, and knowledge production (Knight, 2007). Additionally, changes in the operating environment also motivate universities to internationalize (Taylor, 2004). In practice, rationales are not necessarily exclusive. Some may be predominated by others and changed over time according to the needs, trends, and priorities set by individual universities.

Strategies provide concrete information on activities, programs or initiatives undertaken at the institution to internationalize higher education. At the institutional level, they comprise of the academic program and organizational strategies (Knight, 2007). Program strategies mainly include academic programs, research and scholarly collaboration, external relations, and extracurricula. Organization initiative more focus on governance, operations, services, and human resources.

Methodology

This study utilized a qualitative research design and followed the analytical method by Creswell (2013). First, secondary sources including policy documents, strategic plans, annual reports and statistical information published by governmental agencies (e.g. MOES), universities, and domestic media coverage were collected. Second, semi-structured interviews were conducted during February-March 2018 with four vice-presidents; five directors for international relations, academic affairs; eight faculty deans/vice-deans; and six academic staff who are in charge of international activities at four public universities – National University of Laos (NUOL), established in 1996; Champasack University (CU), founded in 2002; Souphanouvong University

(SU), established in 2003; and Savannakhet University (SKU), founded in 2009. The interviews focused on perspectives on international cooperation and facing challenges. Both secondary sources and interview responses were analyzed through content analysis and interpreted to draw an overall conclusion on rationales and strategies for internationalization in Lao universities.

Results

In Lao PDR, internationalization of higher education is not yet clearly defined, but widely understood as international cooperation. It is promoted as a strategic tool enabling HEIs to expand partnerships for mutual academic exchanges, research collaboration, and capacity building in order to improve education quality and keep pace with the regional and international development. Internationalization is pursued as a goal rather than a process because neither at the national nor institutional levels have had plans prepared specifically for internationalization practices.

Lao universities' commitment to internationalization is positioned within their institutional strategic plans (ISPs), which is prepared in alignment with the ESDP. The ISP contains six major strategies developed as guidance for institutional operations and development, one of which is the strategy for international cooperation. According to the internationalization plan typology of Childress (2009), the ISP is regarded as an internationalization plan for Lao universities. The ISP has a distinct section devoting to internationalization and other statements and bullet points referring to international education. Generally, the ISP-type is likely to be general on what to do without details to implement (Childress, 2009). This cannot apply to the NUOL's ISP which contains details for implementation. In contrast, for other universities, the ISP serves as policy and directives for subunits (e.g. faculties, institutes) to plan activities and resources in implementation and report to upper executive levels respectively. However, if the activities are too decentralized, they can be marginalized, fragmented and isolated (Knight, 1994).

Rationales for Internationalization in Lao Universities

Overall, it was found that international engagement for quality enhancement, capacity building and promotion of the national identity were primary rationales guiding internationalization, with the ASEAN Community as a key external driver. The leadership and senior administrators agreed that engaging in the changing environment of regional and international HE opened a new door to the university's international cooperation to enhance education quality and strive towards meeting

regional and international standards. It is because the achievement and quality of performances of institutions were measured by international standards (Taylor, 2004).

Current changes in the landscape of HE in the ASEAN region have created both opportunities and challenges to Lao HE. Universities have enjoyed expanding international partnerships to seize new opportunities and access resources for capacity building and promotion of national identity. This manifests in growing numbers of joint-research projects, workshops/training, student exchange, cultural exchange and summer programs held in cooperation between Lao universities and institutions in the ASEAN member countries like Malaysia, Singapore, Thailand, and ASEAN + 3 countries. Cooperation with European institutions under the framework of ERASMUS + and ASEAN-EU is also increasingly visible, especially staff and student mobility and capacity building in higher education. Yet, Lao universities cannot fully engage in the competition such as attracting international students and exporting educational programs because of their quality and capacity. The universities are under increasing pressure to produce capable graduates for the needs of the domestic labor market and be able to compete with the workforce in the ASEAN member countries.

While attempting to adapt to the fast-changing world, promoting and preserving a symbol of national identity sustainably is a core function undertaken by Lao universities. They have promoted and preserved local art, cultural heritage, and traditions of multi-ethnic nationalities. In the meantime, the universities have opened to exchange and acknowledge the existence of other traditions and cultures in order to enhance staff and students' intercultural understanding. NUOL recently hosted the 17th ASEAN and 7th ASEAN+3 Youth Cultural Forum, for instance.

Strategies for Internationalization in Lao Universities

The analysis indicated that there were a variety of activities and programs undertaken by the universities as strategies for internationalization. They can be more discussed through teaching and learning, research, staff development, international linkage, and institutional management.

Teaching and Learning

Lao universities have gradually integrated an international and intercultural dimension into teaching and learning activities. They mainly consist of staff and student mobility, joint-curriculum development, and cultural exchange programs. Through these activities, staff and students are expected to acquire international knowledge and develop their academic expertise and intercultural skills to successfully cope with today's increasingly globalized society.

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Inbound academic mobility under bilateral agreements/memoranda is frequently practiced in Lao universities. The presence of foreign academics is important academically to create an international atmosphere within departments. The academics collaborated with local academic staff in various activities such as co-teaching, research, revising contents of textbooks and curricula. This can contribute to long-term significance for academic strength and quality improvement.

Joint-curriculum development is one of the international activities frequently collaborated between Lao universities and international partners. For example, SU targeted to collaborate more with its foreign partners to develop curricula of 11 programs (SU, 2016), while CU focused on developing curricula for master programs (CU, 2017). Such collaborations were viewed as a practical approach to develop curricula internationally and work collectively with well-established institutions. It was noted that the partners working on curriculum development were mostly from neighboring countries such as Thailand and Vietnam. Based on the interviews, jointly developing curriculum enabled universities to create compatibility system, strengthen human capacity building and generate income. First, the developed curricula create favorable conditions for fostering internship and exchange programs of which academic credits can be recognized between two institutions. That makes preconditions for provision of double/joint degree programs and attracting international students. Second, the partner institutions provide local university staff scholarships for professional training and upgrading qualifications to prepare for implementing the developed curricula. Finally, once the developed curricula are implemented, local and partner institutions collaboratively manage the programs and share economic benefits gained from tuition fees.

Student mobility such as student exchange, short-term study abroad and internship programs is a principal part of the strategy for internationalization. So far, Lao universities have created multi-layered cooperation with HEIs and consortia abroad to access scholarships for their students to undertake exchange programs abroad with an exemption of tuition fees at the host institutions. The exchange programs were perceived to develop students' international knowledge, intercultural skills, and career prospects (Sisavath, 2019). The leadership and academics viewed student exchanges to enable the university to maintain its strategic alliances, increase international visibility and improve education quality. Despite efforts to promote student mobility, the practice is a one-way exchange rather than reciprocal mobility and heavily depends on partner institutions in terms of scholarships. Many academics and parents negatively supported students to study

abroad due to a lack of credit recognition (Sisavath, 2019). In reality, although student exchange agreements for credits are signed, foreign credits are not always recognized at home university.

Cultural exchange is a component of the strategy for internationalization to promote national identity and exchange with other countries. The universities aimed to develop staff and students' intercultural understanding and interaction with citizens of other countries to enhance the relationship and mutual understanding. For instance, NUOL hosted and organized knowledge and cultural sharing events such as ASEAN and global knowledge competition and cultural exhibitions where Lao and international students can exchange cultures. Lao universities have collaborated with their partners to organize cultural exchange programs such as Lao-Thai Universities Relations.

Research

Lao universities have focused on specific research disciplines so as to build strategic alliances and research capacity of academic staff to underpin internationalization of research. The universities are assigned by the MOES to be a center of excellence in a specific discipline. NUOL, as a national university, was assigned to be a comprehensive research university. For other regional universities, SU was assigned to focus on civil engineering and tourism, CU for agriculture, and SKU for logistics and economics (MOES, 2011). SU focuses on tourism because it is located in the world heritage town – Luang Prabang. SKU has its campus nearby the special economic zone and lies in the east-west economic corridor, and CU is in the south where is good for agricultural productivity. Specifying research focus was perceived to enable the university to increase cooperation with the industry sector in the particular area, and HEIs in the ASEAN member countries and beyond. Geographically, SU has more potential for cooperation with HEIs in China, South Korea, and Thailand; SKU can contact more with HEIs in Thailand and Vietnam; CU expands international ties with HEIs in Cambodia, Thailand, and Vietnam; while NUOL has cooperated with HEIs worldwide. Although each university had its own research focus; the research area was still depended on grant providers (Sengkhambhouthavong et al., 2011).

Research capacity of academic staff is a prerequisite to increase research productivity and international collaborations. Universities take advantages of research alliances and networks to access foreign support to strengthen research capacity building. The leadership viewed overseas training programs on research skills and sharing laboratories/facilities at partner universities was a productive way to train young researchers. To disseminate research findings internationally, the universities focused on improving scientific writing skills for academic staff. They were strongly

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encouraged to conduct research and publish in academic journals. Yet, not many focus on research due to teaching workload, lack of research skills and constraint of research funds. Language is also a critical barrier so not many can publish in international journals (ADB, 2018).

Staff Development

Human resources are vital to attaining the university's goals of internationalization. Professional development and qualification upgrading were recognized as priorities among Lao universities to efficiently facilitate international activities. All the universities first stressed on foreign language skills (English). The leadership highlighted that those staffed with the international office were to upgrade specific knowledge and skills such as intercultural understanding, laws and foreign policy, communication skills to deal with international tasks successfully. Other specialized skills such as IT, accounting and academic writing skills were also needed. These skills are necessary when dealing with joint-programs and research projects with partner institutions. To enhance such skills, the universities (e.g. SKU) set up a financial scheme for staff to join in training and administrative exchanges abroad. Academic staff were strongly encouraged to apply and participate in short-term training and academic events abroad to enhance their professional competencies such as teaching methodology, course design, research skills, and academic presentation. However, such overseas exposure and travel create unexpected impacts on internal management like a shortage of staff working and teaching at home university. Departments are in difficulties to manage internal tasks like finding substitute staff, grading students' works, academic and administrative meetings.

Staff qualification upgrading was viewed as a key factor in improving education quality and realizing international missions. The universities have been striving to reach an ambitious goal for faculty development. They are required to achieve 1:6:3 ratio, meaning 10 percent of academic staff graduated with a Ph.D., 60 percent a master degree, and 30 percent an undergraduate degree (MOES, 2011). Highly qualified personnel; especially those graduated from overseas, were perceived to help increase international contacts and improve education quality. They can borrow good lessons and practices of other countries and adapt to appropriately suit the Lao context. However, financial support for upgrading qualification is depended mainly on scholarships from partner institutions and international development partners (e.g. ADB). Mostly, only staff who are competent linguistically can get such opportunities to study abroad. The majority were more likely to study in management and administration fields, compared to STEM fields (MOES, 2018).

International Linkage

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Establishing memoranda/agreements with foreign institutions is a vital component of the strategy for internationalization. Many agreed that forming partnerships with prestigious institutions or academic consortia abroad enabled the university to enhance international visibility and prestige. The memoranda open a door to universities' academic endeavor and to access to diverse sources of international support and collaborations instead of depending on any one source. Like, SU targeted to establish 20 memoranda with domestic and foreign HEIs by 2020 (SU, 2016), and similarly, NUOL renewed memoranda to maintain its strategic alliances (NUOL, 2017). Yet, some argued that signing a number of memoranda was not always resulted in increasing international activities. Many were just symbolic of international relations, without any tangible activities.

Institutional Management

Embracing changes occurred to institutional structure and practices are a key factor in sustaining efforts and realizing goals of internationalization. A notable change in Lao universities is they established an international office. The office plays a significant role as the central taskforce for the delivery of international missions and entrenches international awareness into practices of the departments. The office strategically indicates the university's commitment and structural reform to suit its purposes and respond to real needs for internationalization. Furthermore, it was found that the university leadership had strong support for internationalization. Internationally related activities were directly under the supervision of the university president or vice-presidents.

Staff participation is vital to the success and sustainability of internationalization. NUOL exploited international experience and capacity of academic staff to underpin the university's international cooperation. The staff were designated either individually or in-group to coordinate and work with partner institutions in various activities and programs at the faculty/department level in collaboration with the international office. For instance, the staff who graduated from or has had prior experiences in Japan are assigned to coordinate with Japanese universities. This approach indicates that the university has decentralized international missions for campus-wide undertaking. Nevertheless, to date, there is no systematic internal mechanism created to monitor and recognize the achievements of the department or individual staff in terms of international cooperation.

Conclusion

In the Lao context, internationalization of higher education is widely interpreted as international cooperation. It is promoted as a strategic tool to enable HEIs to expand partnerships for mutual

academic exchanges, research collaboration, capacity building to improve education quality and keep pace with regional and international development. At the institutional level, international engagement for quality enhancement, capacity building and promotion of the national identity are considered as primary rationales driving internationalization practices. Meanwhile, the ASEAN Community is recognized as a key external driver for Lao universities to internationalize their HE.

Lao universities have so far undertaken a wide range of activities and initiatives to form a comprehensive strategy for internationalization. They are manifested in staff and student mobility, cultural exchange, joint-curriculum development, research collaboration and expansion of international partnerships. Also, the universities have emphasized staff development such as developing professional competencies and upgrading qualification. To facilitate the delivery of international missions, the international office is established as a central taskforce alongside designating academic staff for international cooperation at the faculty/departmental level.

To enhance internationalization practices in Lao HE, an internationalization plan is first necessarily needed at both the national and institutional levels. The more detailed an internationalization plan is for practices, the more important it is for an institution to involve all stakeholders to share resources and ideas for practices throughout the campus. Second, it is important to create a clear and systematic mechanism to monitor and recognize achievements of international cooperation and incentivize stakeholders' willingness and efforts towards internationalization. Otherwise, internationalization is viewed as the responsibilities of a specific unit/division instead of a campus-wide undertaking. Third, the universities should initiate programs such as study abroad and summer programs to attract international students for income generation to mitigate their financial constraints. Fourth, channels of disseminating information have to be improved to ensure all the staff and students get information sufficiently and timely so that they can access academic and research opportunities abroad. Finally, the universities should raise awareness of internationalization and its benefits among academic staff in particular as they are the task force to carry out international activities such as academic mobility and research collaboration. The academic staff are also key actors in implementing credit transfer system in order to support student mobility, which is a primary feature of internationalization of higher education.

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Papers



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**Enhancing Reading Comprehension Skills by Searching
Information and Data on Google and Using Mind Mapping**

Enhancing Reading Comprehension Skills by Searching Information and Data on Google and using Mind Mapping

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Abstract: According to Nick Douglas, “Guided by programmers and self-teaching programs, the massive database of the Internet built by Google becomes self-aware. With all the knowledge of the internet in the mind of one entity, Google’s machine becomes the most powerful entity to ever exist”. According to Tony Buzan, 1942, “A mind map is a highly effective way of getting information in and out of our brain – it is a creative and logical means of note-taking and note-making that literally “map out” your ideas”. The aim of this paper is to enhance students’ reading skills by searching information and data on Google and using mind mapping .This study tries to investigate searching information and data on Google and using mind mapping to recall and organize the information and facts which the students have learnt are effective for enhancing reading comprehension skills of the students. The thirty second-year non-English Specialization undergraduate students at MONYWA UNIVERSITY in MYANMAR were randomly conducted as research subjects. For data, three comprehensive questions from Straightforward Textbook by Roy Norris & Jeffries were used as post-test. The findings of the research indicate that searching the facts on Google for reading the text in pre-reading and using mind mapping can brainstorm ideas of the students and they can get better comprehension about the text. It can support the students to enhance the reading comprehension skills.

1. Introduction

According to Wikipedia, “Google.com is the most visited website in the world”. According to Nick Douglas, “Guided by programmers and self-teaching programs, the massive database of the Internet built by Google becomes self-aware .With all the knowledge of the Internet in the mind of entity, Google’s Machine becomes the most powerful entity to ever exist”. According to Library Journal News (2003), “Google is, therefore, representative of the variety of easy-to-use search engines, based on free-text searching of the content of public web pages”. According to Tony Buzan (1942), “A mind map is highly effective way of getting information in and out of your brain-it is a creative and logical means of note-taking and note-making that literally maps out your ideas”. According to Goldberg (2004),

“Mind mapping can introduce topics and increase student engagement”. According to Biktimirov and Nilson (2006), “Mind mapping (or “idea” mapping) has been defined as “visual, non-linear representations of ideas and their relationships”. According to Ingemann, (2008), “By mind mapping, one can develop their ability in memorizing, brainstorming, learning, as well as creativity”. According to Fiktorius (2013) “Mind mapping is a tool for teaching language that helps the teacher introduce or bring together multiple words linked to one subject or theme”. According to Supriyoko (2004), “Reading comprehension, reading habit and reading interest have a positive correlation”.

There is a big challenge of teaching reading skill for teachers when we, teachers force students to read the text without the help of teacher; if students have to learn unknown text which is unusual for them. Students will not get complete understanding to unfamiliar content or text if they don't have background data about the text. For reading comprehension skills, background data is needed for students.

Therefore, teacher should introduce and input the students the required background data at first. Google is the most convenient thing to search data and information nowadays. By searching and learning the needed information on Google, students can get support to have better understanding about the content of the reading passage. The use of mind mapping for recalling and organizing facts and information students have learnt is a supportive and effective means to read the text.

2. Literature Review

According to Stavonich, 1991; McNamara, 1991, Selberstein, 1994, Grabe and Stoller, (2002), “Background knowledge plays important role in reading comprehension”. There is a question for teachers how we could help the students to get background knowledge of the unusual text for the students. According to Wikipedia, “Google is the brand name of a leading internet search engine, founded in 1998. All Google, it is one of the most renowned terms in Internet world. Google's mission statement is to organize the world's information and make it universally accessible and useful”. According to Sullivan (2003), “Google has been in the search game a long time, it has the highest share market of Search Engine (about 81%). Google alone claims to handle more than 250 million search queries a day”. Google is the most popular website in the world by providing different kinds of tools and information. According to Jan Brophy and David Bawden “Without doubt, the Internet, and specifically

the World Wide Web, has transformed the information environment in the past decade, providing more rapid access to a greater volume of material than possible at any earlier time. Google is therefore, representative of the variety of easy-to-use search engines, based on free-text searching of the content of public web pages". According to Bell (2004), "Google has become the symbol of competition to the academic library." Google can support internet users all kinds of information and data with videos, images, news and maps. Therefore, it would be helpful and efficient for students to search about unknown fields and facts to be familiarized and visualized in their mind's eyes. According to Stavonich, (1991); McNamara, (1991), Selberstein, (1994), "to comprehend a text, the students must have background knowledge which is divided in two, background knowledge of the language and background knowledge of the world". Although the students have got background knowledge about the text, teacher needs to help them for recalling and organizing the facts to be more adequate and operative to read the text. According to Tony Buzan, "Mind mapping is a visual tool used to organize and relate themes or objectives". BUZAN mind mapping is an effective system of note-taking and it is also the most enjoyable way for students because students are more excited to express the facts they have learnt by drawing mind map than any other ways. This can also help the students read and comprehend the text more easily and quickly.

3. Aim and Objectives

The aim of this paper is to enhance students' reading skills by searching information and data on Google and using mind mapping in the circumstances that students can't cope with some information and meaning of the text when their background data is insufficient. This study tries to investigate whether searching information and data on Google and using mind mapping which could recall and organize the information and facts that the students have learnt are effective for enhancing reading comprehension skills of the students or not. This paper intends to support progressing and enhancing reading comprehension skills of students.

4. Methodology

In the study, the quantitative method of research was adopted in the form of reading comprehensive question for post-reading. The data were collected as three reading

comprehensive questions after reading. When learning two reading passages by students, students had to answer three reading comprehensive questions about the text for each reading passage from Straightforward Text Book. The percentage of correct answers responded by 30 students was used as the survey. The collected data were used to analyze reading comprehension skills of the students and to test how to enhance reading comprehension skills of students by searching information and data on Google and using mind mapping.

5. Participants or Research Subjects

In this study, the 30 second-year Non-English Specialization students at MONYWA UNIVERSITY in MYANMAR were conducted as research subjects.

6. Data Collection

The instrumentation used in this study includes (1) students' searching information and data on Google, (2) the students' mind maps and (3) questionnaire including three reading comprehensive questions for each reading text and teachers' observation. In this study, teachers made five groups belonging to six students. Each group of students had to search information and data on Google that the teachers set guideline. Each group had to create collection of mind maps from the information and facts they had learnt on Google. After forcing to recalling and organizing their gathering information and facts, teachers gave students two reading passages about Australia from Straightforward Textbook. After they had read them, each of the three reading comprehensive questions about the given passages from Straightforward Textbook were spread out to the groups. Teachers collected the answers responded by each group and analyzed the circumstances of the progress of reading comprehension skills in them.

7. Data Analysis

Based on the instrumentation, each data which had been collected were analyzed using descriptive figures and statics to find answers for each research questions. First, the thirty students were divided into five groups including six members. Then, they were asked to

search some information and facts of Australia on Google and to create mind map. It was associated with “About Australia”. The facts were some of the examples of (1) sports, film and music personalities of Australia, (2) well-known sights and landmarks of Australia, (3) climate and animals of Australia, (4) things to do in Australia and (5) history and cities of Australia. By searching information and data on Google using their mobile phones, they filled their mind maps with the respective data. The completion of the mind maps was measured as in the five figures.

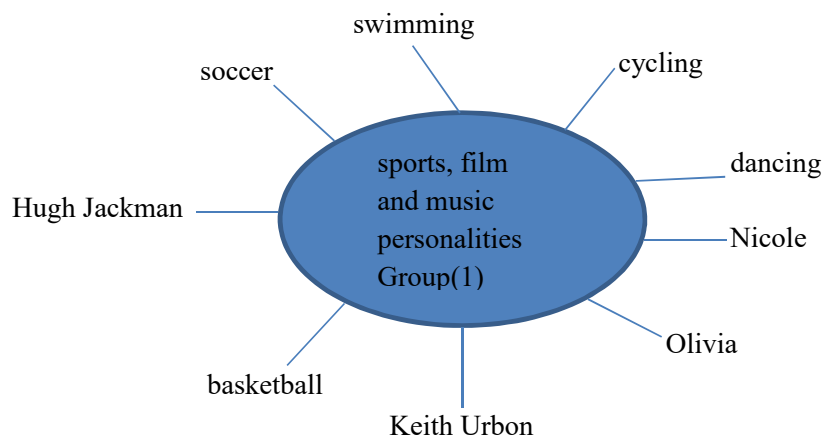


Figure-1

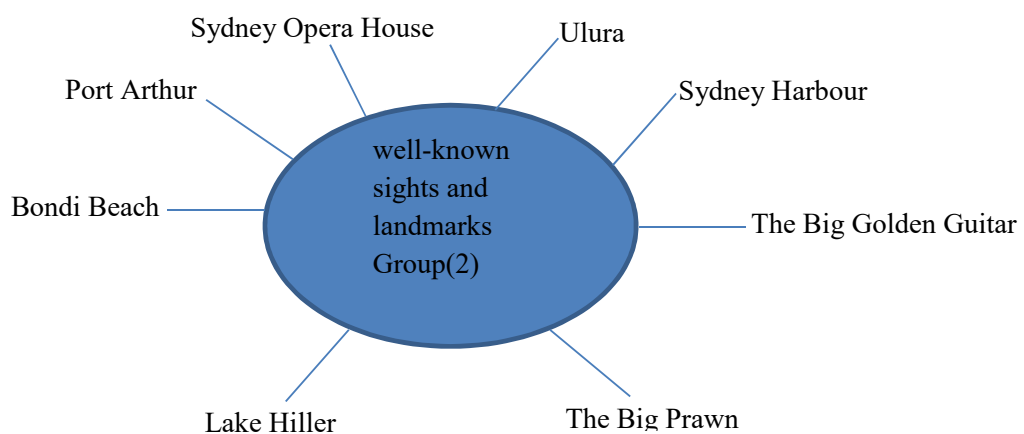


Figure-2

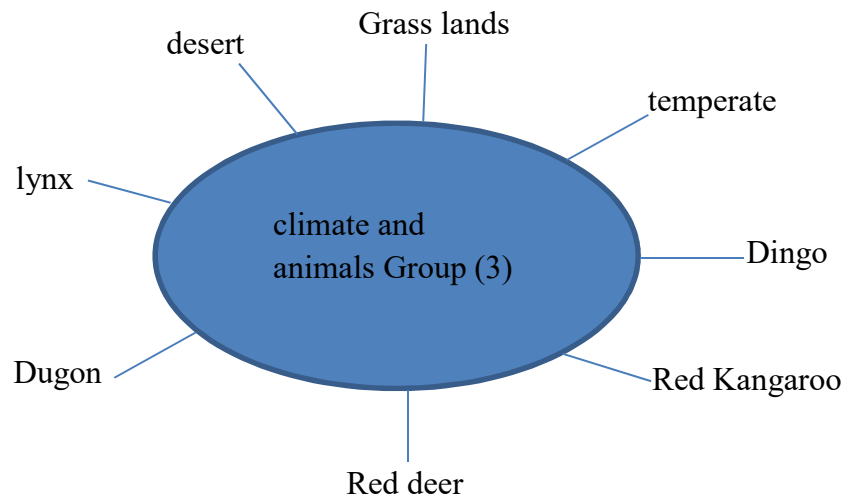


Figure-3

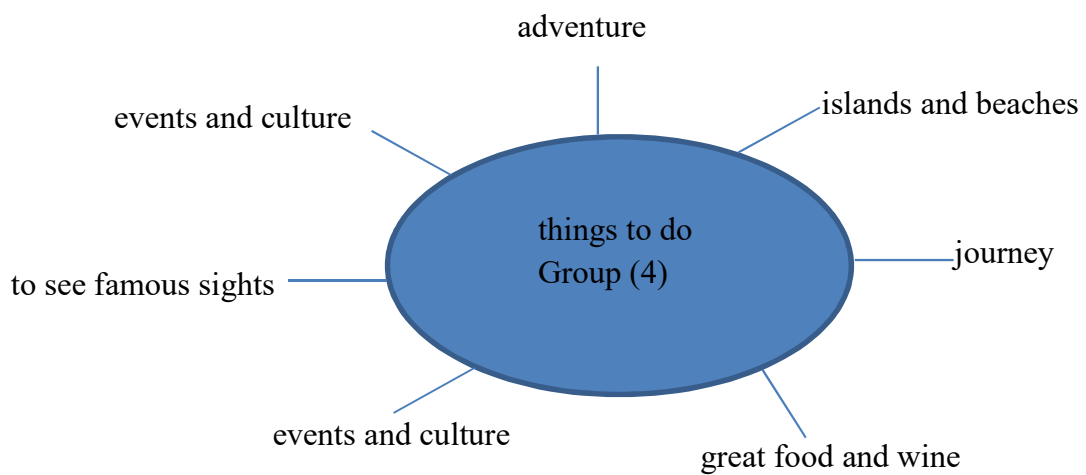
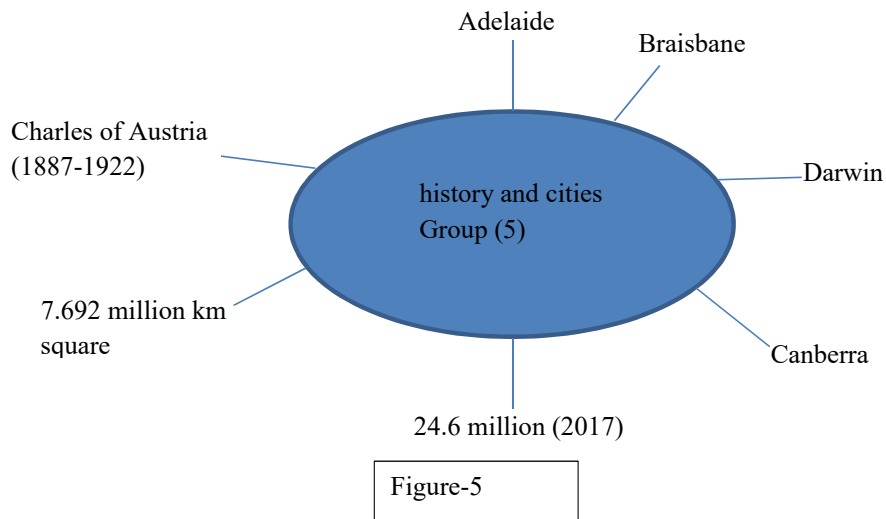


Figure-4



The first text was about Uluru in Australia. The three reading comprehensive questions from Straightforward Textbook were used to evaluate and observe about their reading skills.

Reading Comprehensive Questions

- Q.1 Where is it?
- Q.2 What does it represent for the local people?
- Q.3 How was the rock declared in 1987?

Next, the other text was about Nerina Klein's travel blog. There were also three reading comprehensive questions for it and they were used from Straightforward Textbook.

- Q.1 Who is the author? What does she do?
- Q.2 What is she going to do?
- Q.3 What is the purpose of her blog?

TABLE.1 for Text.1

Group Number	Correct Answers	Acceptable Answers	Totally wrong Answers
Group 1	2	1	0
Group 2	1	1	1
Group 3	2	1	0
Group 4	2	1	0
Group 5	1	2	0
Total	8	6	1

TABLE.2 for Text.2

Group Number	Correct Answers	Acceptable Answers	Totally wrong Answers
Group 1	2	1	0
Group 2	2	1	0
Group 3	2	1	0
Group 4	2	1	0
Group 5	2	1	0
Total	10	5	0

TABLE.3 for Total Answers from TABLE.1 and TABLE.2

Total Number of Answers	Correct Answers	Acceptable Answers	Totally Wrong Answers
30	18	11	1

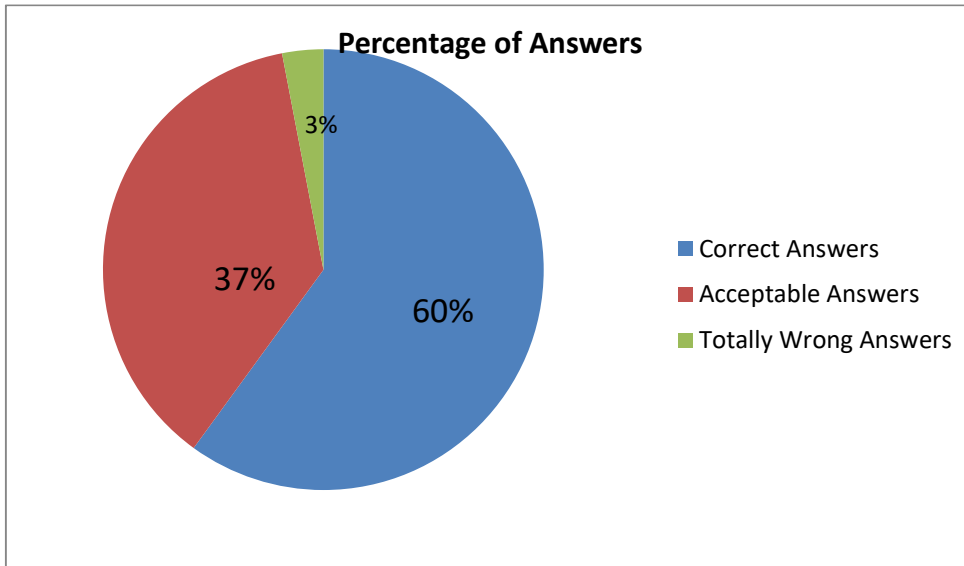


Figure-6

8. Findings and Discussion

According to the survey and statistics, the percentage of correct answers is strong. There are 60 percentages of absolutely correct answers in total answers. The acceptable answers are 37 percentages in total answers. There are only 3 percentages of totally wrong answers in all. By learning this survey, the students' reading comprehension skills are great and satisfying. That is because searching information and data on Google are effective to

enhance the students' reading comprehension skills. It is more supportive to boost their reading comprehension skills if the background data of the text is unusual. And then, using mind mapping is efficient to recall and organize the information and facts the students have learnt. There are many other ways to improve reading comprehension skills. Youths of today tend to be interested in modern technology and almost of the students use mobile phones and they are more used to apply internet and digitalization. This research is advisable to teachers that searching information and data on Google and using mind mapping can enhance reading comprehension skills of students. By means of this, we, teachers should lead students to read the text comprehensively and systematically.

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Papers

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Employability of Senior High School Graduates under TECHVOC Track with National Certification in Graphics and Animation from TESDA

Employability of Senior High School Graduates under TECHVOC Track with National Certification in Graphics and Animation from TESDA

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***Abstract:** In 2012, then Philippine President Benigno Aquino III, sign into law the Republic Act 10533 or The Enhanced Basic Education Act of 2013 or most commonly known as K-12. The new curriculum was implemented in the school year 2012-13 starting from public schools and later followed by private schools. The law requires three government agencies such as DepED, CHED and TESDA to collaborate in formulating, harmonizing and avoid redundant subject in the enhanced basic education curriculum. The K-12 curriculum is composed of kinder to grade 6 as primary education, grade 7 to 10 as junior high school and the additional 2 years, grades 11 & 12 as senior high school. Through different tracks and strands, the added two years as senior high school ensures the college readiness of the graduates and at the same time the employability in case they decided not to pursue college. Among the track is TECHVOC that requires certificate of competency and or National certification of their chosen strand through TESDA programs. However, after years of implementation it is still questionable that the first wave of graduates is employable after senior high school.*

The objective of this descriptive research is to give better understanding and avoid misconceptions about the employability of senior high school graduates in TECHVOC specifically ICT in graphics arts and animation under the competency by TESDA accredited training and assessment program. The researcher also aims to give in-depth information about the new curriculum, its supporting government agencies and private sectors, and expectations from graduates of senior high.

Keywords: Employability, K-12, Graduates, certification

Introduction

K-12 or K through 12, K-twelve or K to twelve is an education system originated in the United States that indicates the number of years of publicly supported education prior to college. It was named after Akron, Ohio where the system first conceived as law which attempts the unification of curriculums and local education funding. Thus the Akron School Law of 1847 paved the changes in the education system from local to international standard. Since its inception as law,

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K-12 has gone through several waves of debates and reform to standardize and uptick the quality of education. Just as when Philippine education system adopted this into law as Republic Act 1033 or the Enhanced Basic Education 2013 signed by then Philippine President Benigno Aquino III. It was implemented in the school year 2012-13, which started in public schools and later followed by private schools. As of writing there were two batches of Senior High school graduates from school year 2017-18 and 2018-19, and so the effect of the program remains in question as to whether the objective was achieved. Particularly the knowledge and skills of Senior High graduate in technical-vocational strands which most expects that graduates are expected to be employable.

The first part of this paper states the background of K-12 education as it translates into Philippine education system which by itself influenced by foreign education. The succeeding part explains the K-12 in terms of local implementation, objectives, expectations as well as the government agencies involved. The last part of this paper concludes with an explanation as to the notions on the employability of senior high graduates specifically in Arts, Animation and Graphics Arts for Technical-Vocational-Livelihood track.

Background

K-12 starts with 1-year preparatory schooling or kindergarten, then twelve years of basic education. The twelve years pertains to 6 years of primary school, 4 years of junior and 2 years of senior high school. The added 2 years of high school prepares students for tertiary education, skills development, employability and entrepreneurship.

K-12 was originated in the United States of America. Public schooling was introduced in the 17th century which focuses on teaching family virtues, religion and community works [Board and Board, 2019]. In the late 18th century public schooling was first envisioned as free education for families that could not afford. During this period, schooling became compulsory for ages 8-14 years old as main responsibility for teaching academics. Schools are often operated exclusively, offering dedicated curriculums. However, it was in the State of Ohio that the attempt to unify the curriculum was first conceived and put into law in 1849. The objective of this legislature is to unify the school systems in terms of curriculum, operations, government funding among others

[Ohiohistorycentral.org, 2019]. In the year 1930s 50 states had passed a law that is making education compulsory and were later signed by President Lyndon B Johnson making Elementary and Secondary Education Act (ESEA) into law. Since the implementation of this law, several waves of reform have been debated and developed to uptick the education system not only locally but was also adopted by other countries such as Canada, Australia, Ecuador, and Middle Eastern countries such as Egypt, India, Iran, Turkey, as well as in Southeast Asian Countries.

Education in Southeast Asian countries private education expenditures is increasing due to demand for high education with market coming from middle class. The demand is driven by; shrinking household which was used to an extended family, rapid urbanization that led to increasing demand for better quality education and eventually higher income, affordability due to robust economic performance and steady rise on average income per household, low capacity against demand driven by overburdened public education system, value of English proficiency which became essential requirement in getting a job which also lead to the last driver, the desire for international education for better opportunities in the local and international market [Education in Southeast Asia Opportunities for investors and operators, 2016]. The drivers seek standard education recognized internationally. Philippines were one of the last among Asian countries and one of the 3 last countries around the world that had a 10 years education program, Angola and Djibuti as the other two.

Philippine Education Systems

International influence for formal education in the Philippines has been in existence since the colonial period, way before 1500s. During this time, the country's basic economy is through agriculture, livestock, fishing, mining, lumbering and shipbuilding, weaving and trading. Education system is preexisting through vocational training, parental guidance and tribal tutors while teaching is commonly done through oral and Baybayin or writing. Academic and vocational educations were given according to needs. Given economic status, parents teach their children to do hunting, fishing, mining, ship builders and to be a warrior particularly for their son by their father. Daughters on the other hand were taught by their mother to do cooking, gardening, household chores and crafts to prepare them from parental responsibilities. Academic teaching

through schooling or Bothoan is done by older man in charge in reading, writing, arithmetic and use of weapons [Teacher.ph 2019]. Culture during this time is basically Malayan structure and form with written and language for communication and literary expressions. Teaching by Babaylan and Katalonan are more of beliefs and traditions. Although the literacy rate is high, this makes them susceptible to foreign influences.

During the Spanish period in 1520s religious' setup of education, such as parochial schools and books for education was introduced. Schools and type of education are categorized according to social class, gender and private or public owned schools. Private schools are owned by individuals and founded by non-Spaniards which was brought missionaries, while public schools are government or owned by Spaniards which offers free education. Christianity was the principal goal during this period making religion as compulsory in primary schools and universities. Gender separation for school was implemented which basically teaches practical skills, reading, writing and arithmetic and vocational course. High school, now equivalent to tertiary school teaches psychology, mathematics, history, geography and Latin was introduced in the 17th century by missionaries.

The most important and notable contribution came during the American occupation nearly in 1900s, service men or armies are teaching through select books and English language was introduced. Filipinos became pensionados for United State government finance education that focuses on training the Filipino for self-governance by removing the compulsory religion subjects, recruiting teachers, become a leader and to foster a love for country among the youth. However, the increasing number of enrollees results in a shortage of teachers. Education system was reduced from 7 years of elementary to 6 years and 4 years of high school that is equivalent to college. High school came into being only in the early years of the 1900s. School emerges roughly 10 years later due to growing number of enrollees, economic depression, technological development and medium to large business demands for workers. High school curriculum then focuses on practical skills to prepare them for work [Dalmacio, 1980].

During Japanese colonization, schools and churches were used to propagate Japanese language. A Japanese Military Administration's Order No 2 of February 1942 was released with six basic points in education: propagating Filipino culture, dissemination of the principles of the Greater

East Asia Co-Prosperty Sphere, spiritual rejuvenation of the Filipinos, teaching and propagating of Niponggo, diffusion of vocational and elementary education, and promotion of love of labor [DepEd, 2019].

By year 1945 to 2011 a compulsory Kindergarten and pre-schooling, six years of primary schooling or elementary and 4 years of secondary or high school, now pertains to junior high. Being grades 1-3 as primary with student age range from 6 to 9 years old, grades 4-6 as intermediate for age range 9 to 12 years old, high school first year is freshman, second year as a sophomore, third as junior and 4th year as senior high school for the age range of 12-16 years old. The ten years of primary and secondary schooling can be followed by 1-2 years vocational or certification course or 4-5 years college degree or tertiary schooling for career-based courses. The 10 years of education are then called undergraduate or graduate school. Additional 3-4 years of education for post graduate studies or masteral degree and 5-6 years for doctoral.

Education is provided through public or private schooling, academy and colleges, universities, technical and vocational. In 1991, Congressional Commission on Education (EDCOM) was divided into 3 divisions the department through Republic Act 7722 and 7796 in 1994 or the trifocalization of education system. CHED or Commission on Higher Education supervise tertiary degree programs, while TESDA or Technical- Vocational Education and Skills Development Authority handles the non-degree technical-vocational programs. DECS or Department of Education, Culture and Sports remains accountable for primary and secondary programs. The department was later changed to DepEd or Department of education under the Republic Act 9155, Governance of Basic Education Act in 2011.

In 2010, then Senator Benigno Aquino III has already expressed the desire to develop the Philippine education system by increasing the number of compulsory educations from 10 years to 13 years following the K-6-4-2 or K-12 basic education system and standards. This will make Kindergarten one year as compulsory under the Kindergarten Education Act of 2012, while 6 years of primary, and 4 years of junior high school and 2 years of senior high school was made official through the virtue of Enhanced Basic Education Program Act or Republic Act 10533 of 2012. However, DepEd has been implementing the K-12 since school year 2011-2012 but only enacted as law in 2013 [CHED K to 12 Transition Program, 2019].

The Enhanced Basic Education Act of 2012

Stated on Department of Education website and government Official Gazette website, the K-12 Basic Education program will *provide enough mastery of concepts and skills, develop lifelong learners, and prepare graduates for tertiary education, middle-level skills development, employment and entrepreneurship* [Official Gazette of the Republic of the Philippines, 2019]. This system made it compulsory for kindergarten education wherein children at the age of 5 years old are given resources to slowly adjust to formal education and two years academic or vocational courses in preparation to tertiary school and or employment to graduates of senior high school. Grades 1 to 12 remains as primary and secondary education, but curriculum was developed in a contextualization and enhancement with in depth knowledge, skills, values, and attitudes through spiral progression, proficiency in mother tongue and languages.

Senior high school or specialized secondary education is the added 2 years of; Academic, Technical-Vocational-Livelihood and Sports, Arts and Design track based on aptitude, interest, and school capacity. Each track has strands to choose from. Academic track includes; Business, Accountancy, Management (BAM), Humanities, Education, Social Science (HESS), and Science, Technology, Engineering, Mathematics (STEM).

The core curriculum of senior high school includes: Oral Communication, Reading and Writing, Komunikasyon at Pananaliksik sa Wika at Kulturang Pilipino, Pagbasa at Pagsusuri ng Iba't-Ibang Teksto Tungo sa Pananaliksik, 21st Century Literature from the Philippines and the World, Contemporary Philippine Arts from the Regions, Media and Information Literacy, General Math, Statistics and Probability, Earth and Life Science, Physical Science, Introduction to the Philosophy of the Human Person, Physical Education and Health, Personal Development, Understanding Culture, Society and Politics, Disaster Readiness and Risk Reduction [Deped.gov.ph, 2019].

Applied Tracks Subjects however includes: English for Academic and Professional Purposes, Practical Research 1 & 2, Filipino sa Piling Larang, Empowerment Technologies (for the strand), Entrepreneurship, Inquiries, Investigations and Immersions.

Academic track includes; Accountancy, Business and Math (ABM), Human and Social Sciences (HUMSS), STEM, General Academic Strand (GAS), Pre-Baccalaureate Maritime.

Technology and Livelihood Education (TLE) and Technical-Vocational-Livelihood (TVL) tracks offers specialization designed to provide students with job-ready skills. An equivalent number of hours during grades 9-12 and an exploratory subject for 40 hours in grade 7-8. This track requires competency and/or National Certification. There are four strands for this track: Agri-Fishery Arts (animal production, crop, landscaping, food processing and fisheries), Home Economics (business, fashion design chief entrepreneur, beauty and wellness, cooking, tourism and hospitality, and handicrafts), Industrial Arts (plumbing, welding, repair and installation, automotive, electronics, carpentry and constructions) and Information and Communication Technology or ICT (software, hardware installation, computer programming and servicing contact center-services and graphics). Thus, focuses on skill development in terms of communication, critical thinking, body coordination, tool savvy, troubleshooting and safety [Karl Nicole, 2019]. This research however focuses on the later track, ICT with National certification and TESDA specifically Visual arts and Animation.

Status of Implementation

The implementation of K-12 in the Philippines during the school year 2012-13 has made a huge impact in the education system of the country. It was first implemented in public schools then later followed by private schools. Entry grade 1 and 7 are the first to undergo the transition stage. The implementation requires the collaboration of 3 government agencies included in the trifocalization: DepEd, CHED and TESDA, their core responsibility remains to primary education for DepEd, CHED for tertiary and TESDA for vocational courses. The adjustment period for the implementation is not limited to primary school. Most of the tertiary general education subjects are included in the Core Curriculum for Senior High school. This left Tertiary education to adjust their curriculum as well to a more career related subjects. TESDA on the other hand, widens its training and certification scope from high school graduates to ongoing senior high school curriculum. Aside from the implementation of the K-12 curriculum, was the adjustment for the start of school year for tertiary schools, following international standards. Some private high school particularly those of internationally recognized also followed to accommodate exchange students from different countries.

As for the objective of implementing additional two years of senior high school that aims to prepare graduates to college, future employability and or entrepreneurial, DepEd however, cannot guarantee immediate employment [Newsinfo.inquirer.net, 2019]. This resulted to question the credibility of implementing senior high school (SHS). Instead, DepEd ensure that this will create opportunities for cultivating the abilities of the students by fostering partnerships with companies through technical vocation and eligibility to apply for Certificate of Competency (COC) and National Certification (NC) issued by TESDA.

Discussion

During the first day of my teaching class for this term school year 2019-20 at Lyceum Philippine University, Manila, Multimedia Arts with students coming from the first two batches that graduated senior high school, I took the chance to ask them question as to their opinion of the senior high school; what their expectation and experiences was, and other questions that was addressed to the entire class. This is not a survey but rather a first hand discussion with some of the first 2 batches of K-12 graduates. Voting was done through raising their hands on topics they share common experience. Opinions were expressed verbally as each one of them take turns in talking in front of the class to introduce themselves as they share their personal experience in the implementation of K-12.

Number of respondents		48					
Gender	Male	67%	Female	33%			
Age Bracket	17	2%	20	10%			
	18	42%	21	8%			
	19	38%	22	0%			
School year graduated SHS		2017-18	34%	2018-19	60%	N/A	6%
Knowledge of the course		YES	22%	NO	15%		
		Somehow	57%	N/A%	6%		
Track/ Strands taken		HUMMS	27%	STEM	16%		
		TechVoc	13%	Arts & Design	12%		
		ABM	10%	MMA	4%		
		Culinary Arts	2%	GAS	8%		
		Psychology	2%	N/A	6%		

	YES	NO	SOMEHOW/ MAYBE	N/A
Expectations met according to track description	58%	17%	19%	6%
Track/strands taken is related to tertiary course	22%	32%	40%	6%
Will take the same track/ strand	46%	42%	6%	6%
Believe that there is an advantage in SHS	23%	15%	56%	6%
Expect to be employable after SHS	35%	50%	9%	6%
Will attempt to apply for the job	56%	31%	7%	6%
Believe that Tertiary schooling is important	83%	6%	5%	6%

In summary, most of them took HUMMS for SHS strand since as per description it will help them hone their skills in preparation for Multimedia arts which is their current course they take up. Before the end of junior year, students were asked to take an evaluation exam to help them determine what track they are going to take during their senior high school. This exam though is just a guide but not for mandatory taking. Although according to them the description given to them about their chosen strand was misleading and that they feel majority of schools is still not ready yet with the implementation, they will still take the same strand if given the chance to change. While they think it is not related to their course they are currently taking, the knowledge, skills and attitude was developed and taking SHS will benefit the education of next generation if properly implemented.

In addition, these students still believe that it is important to attend tertiary school because they are not confident yet with the skills needed for their chosen career. The reason for this is because not all of them took the track related to their chosen tertiary course and that they are still undecided on what course to take. SHS also brought them to realization on what course they will take for college. Even though they see the importance of education particularly in college, they will still try their luck and current skills in finding a job after SHS. Not only to prove they are ready to work but they see this as venue to earn money for self-support.

Conclusion

Since pre-colonial period, education system has been in existence with dedicated learning depends on location and means of living. Like those who live near the water are taught how to fish while those who lives by mostly land are taught how to farm. Each colonization has contributed different education system to Filipinos which includes classifying education according to social status. Those who are well to do is more privilege of having a good education compared to those with limited means of paying. However, public schools especially state universities maintain good quality education with a little to no tuition fee. Private schools however started developing their own standards and system but with accordance to government regulation and exclusive curriculums for their students’.

Given that the country was able to go through two batches of senior high school graduates, many young generations still values that education degree and graduating from a prestigious school is priority over finding a job after high school. Take the case of my students who agrees that senior high school improve their skills and preparation for tertiary and feels confident that they have enough skills to find a job after high school. However, majority or 83% of them will still push to be a degree holder. Supporting this, DepEd states that 61 percent out of 700,000 to 800,000 graduates of senior high school still plans to pursue college.

Employment and poverty are the primary reason for the increasing demand for good education. The better education corresponds to better paying jobs which resembles for better means of living. However, the lack or low skills could result low productivity jobs and later low employment rate. Most employer still thinks that education is not enough to be employable. Most of the time even degree holders are not job ready due to lack of actual job skills. This is the reason that brought K-12 into law. Included in the SHS curriculum is the 80 hours work immersion.

Currently, employability of SHS after graduation remains uncertain. Many companies still find that the need to go through training phase before hiring them full time employees. However, employability is not the primary goal for the transition to K-12 education system but rather prepares the students for their chosen tertiary course and an option to continue their education.

On the other hand, creative industry is not after the number of diplomas or certificates you received during schooling but rather the portfolio showcasing their skill is more imperative. Reason being that majority of the creative studios will accept SHS on condition that they have to go through training stage before full employment. The objective of the training is not only to hone the skills of the trainee but also to adopt with company standards.

TESDA on the other hand has been active in giving scholarship voucher on different TechVoc program even before K-12 system. Included in their annual training program and certification are Certificate of Competency and National Certification on arts related courses such as 2D animation, 3D animation, Game Art Development, Visual Arts, Digital Arts Technology and Illustration. The certification granted by TESDA through standardized assessment and training is internationally and nationally recognized. Filipinos that are planning to work abroad are applying for the training and certification programs. Graduates of senior high school that took the TechVoc strands may take the certification exam. Passing the said exam will help them find a job here and abroad.

However, not all the training courses offered by TESDA are qualified for the TeachVoc except 2D animation and visual graphics. Interested graduates outside the training program of TESDA may still apply for assessment to be certified in their chosen field.

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Papers



Dr. Arturo Mariano I. Figueroa

**Trans-boundary Higher Education Institution Research
Collaboration with a view to address Environmental
Sustainability**

Trans-boundary Higher Education Institution Research Collaboration with a view to address Environmental Sustainability

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ABSTRACT: The education landscape in Southeast Asia today is changing towards excellence in performance. Both private and public higher education institutions struggle to achieve superior standards. Research collaboration as a directional strategy is strongly promoted by each country's Higher Education Agencies. In this paper, an idea is presented where the water-energy-food nexus is used as an inter-phase and platform for research collaboration, thereby building connection among three(3) higher education institutions, namely an agricultural university, and a private university that are both in Pampanga, Philippines and a public university in Palembang, Indonesia. As argued by Kanngieser, Neilson, and Rossiter (2014), a platform is a medium through which research and knowledge are shaped. All these three academic institutions have no engagement before. In this study, the collaboration framework of the National Network for Collaboration (Bergstrom, et al., 1995) is adopted. This framework provides a dynamic interaction for building the research collaboration of academic institutions in a cross border context using the WEF nexus concept. Cross border refers to participation in research between countries (Gal, Glänzel, and Sipido, 2017). The study made use of descriptive research using Delphi technique (expert opinion) and document analysis as data gathering tools. The research manager of each university was interviewed as focal person in the study. Results showed the current and emerging themes in the water, energy, and food sector (in literatures) that are mutually accepted by participating higher education institutions. For the key performance indicators to prove that the themes will be realized by the joint R&D, all the three collaborators mentioned their strategic KPIs, that is, measuring strategic objectives through the monitoring of progress or trends toward a stated destination (Marr, 2019). The outputs of the analysis are possible research and development themes which address water-energy food nexus. If these targets are attained, then a possible roadmap would be established for building competitiveness and performance. The roadmap is developed based on the example developed by Duman (2013).

INTRODUCTION

According to Walpole and Lynn (2015), the landscape of conducting and funding research is changing and there is growing emphasis on building strategic local or international partners for collaboration. In engaging in research collaboration, there are positive results such as capacity to

address complex issues, innovation, community inclusion, bi-directional research planning, and research ethics training (Baquet et al.,2013). However, for those who want to start or venture into a new collaboration, the information about using a platform as a basis of research collaboration is lacking. In this paper, the concept of water -energy -food nexus is used as a platform to see the prospect of developing research collaboration among three(3) different higher education institutions , two(2) HEIs from the province of Pampanga, Philippines and one(1) in Palembang, Indonesia. The water, energy, and food nexus have been well-elaborated in literatures where authors and various organizations defined and addressed the nexus concept from their viewpoints (Hoff, 2011; Waughray, 2011; Guillaume et al., 2015; Allouche et al., 2014, Darton et al., 2014). Because the use of one resource affects the systems of the other resources, it is therefore necessary to look into these systems in an integrated manner--the nexus approach. In general, the objectives of the WEF nexus approach are to improve water, energy, and food security, address externality across sectors and decision-making at the nexus, and support transition to *sustainability* which is “a condition of balance, resilience, and interconnectedness(Morelli, 2011).” The objective of the paper is to explore how Holy Angel University (HAU), Pampanga State Agricultural University (PSAU), and Sriwijaya University(SU) can do research collaboration using the Water-Food-Energy Nexus as a platform. To achieve this goal, the following questions were addressed:1) What are the current and emerging research themes (as reported in literature) about the WEF nexus? 2) Which among these themes are mutually accepted by HAU,PSAU, and SU? 3) What are the KPIs to prove that the themes will be realized through joint Research and Development (R&D)? 4) What R&D resources are needed to conduct *world-class* research and instructional activities along these mutually accepted themes? Altbach (2003) defines world class research as an excellent research that is recognized by peers and that pushes back the frontiers of knowledge.

5) Which R&D resources are available at HAU,PSAU, and SU or among the three?6) Which R&D resources in Item 3 are unavailable among HAU, PSAU, and SU? How can these resources be acquired? What strategies must be pursued to acquire these resources? 7) What are the goals and directions of the joint R&D Roadmap for HAU,PSAU, and SU in connection with the attainment of the mutually agreed themes? 8) Will third-parties in the R&D continuum be needed for the R&D Roadmap to succeed? If yes, what are their roles?

The significance of the study is to develop a *mechanism* that will build a connection among the three(3) diverse HEIs which did not have any engagement before. Yu (2017) defined a mechanism in terms of building knowledge alliance partnership in scientific research collaborations due to complementary resource advantages, cost and risk sharing, and mutual learning. The outputs of the analysis are possible research and development themes which address WEF-nexus and a possible roadmap that may be established for building competitiveness and performance.

In this study, the collaboration framework of the National Network for Collaboration (Bergstrom, et al., 1995) is adopted.



Figure 1. Collaboration Framework

The framework has four (4) elements such are grounding, core foundation, outcomes, the process and contextual factors. Grounding refers to the diversity with which the collaborators share and desire to collaborate. Core foundation is the shared purpose and destiny of the collaborative efforts. Outcomes are the things achieved by doing collaboration. The process and contextual efforts are the things that affect the daily activities of the collaboration. Hogue (1993) introduced a model of collaborative relationship highlighted by 3 aspects-- purpose, structure,

and process. The operations of these 3 aspects are made evident in various levels such as networking, cooperation or alliance, coordination or partnership, coalition or collaboration.

METHODS

The study made use of descriptive research using Delphi technique (expert opinion) and document analysis as data gathering tools. The research manager/or distinguished researcher of each university was interviewed as focal person in the study. Other R&D decision-makers from each university such as the Vice-President for Academic Affairs, Deans, University Research Council members, and representatives from organizations who provide (or are interested to provide) research funding were included in the study. A self-made questionnaire was prepared to guide the interview. Data were collated, tabulated, and analysed

RESULTS AND DISCUSSION

The current and emerging themes (in literatures) that are mutually accepted by HAU, PSAU, and SU are shown in Table 1. Six out of 8 themes for the water sector, two out of three for the energy sector, all the themes for the food sector were mutually accepted.

Table 1. Degree of acceptability of Nexus theme

Current /Emerging Themes	HAU	PSAU	SU
Water			
Efficient management of water supply and sanitation	80-100%	60-80 %	80-100%
Construction of the rain water harvesting tank/well/water reservoir	60-80%	80-100%	80-100%
Installation of the small scale type water supply system.	60-80%	x	80-100%
Construction and repair of the sanitation facility	60-80%	x	80-100%
Implementation of the Water-related disaster risk reduction/mitigation program	80-100%	60-80%	80-100%
Maintenance and improvement of the water resources environment	60-80%	60-80%	80-100%
Installation and promotion of the water efficiency irrigation system	80-100%	60-80%	80-100%
Water resources management	80-100%	60-80%	80-100%
Energy			
Energy supply and energy efficiency			
Decentralized Energy Systems	80-100%	x	60-80%
Energy planning and policies with emphasis on hydropower and bio-fuel	80-100%	80-100%	60-80%
Food			
Land use and food security			
Agri-eco-tourism	80-100%	80-100%	80-100%
Food production systems, including fisheries, irrigation and cropland management	60-80%	80-100%	40-60%
	80-100%	80-100%	80-100%

For the key performance indicators to prove that the themes will be realized by the joint R&D, HAU, PSAU and SU indicated Appropriate Technology Generated. In addition, SU suggested

Guidelines or handbooks and increased farmer's skill. Other interesting KPIs worth considering were ISI-indexed journal publication and number of beneficiaries served by the research output. In terms of R&D resources needed to conduct quality research and instructional activities of each collaborator, HAU has lesser percentage of faculty doing research (35%) compared to PSAU (50%). SU has a larger faculty with PhD/MS (>80%) doing research. In this case, it can be beneficial for both HAU and PSAU to venture on research collaboration with SU as a strategy for enhancing research involvement and productivity. The principle of complementation can be practiced in research collaboration, where a missing resource can be complemented by the resource of other. For example, land for field demonstration is lacking in HAU (PSAU has 600 Ha, SU has >50 Ha) whereas electronic databases (ProQuest Central, IEEE Xplore, CRC.Net) are lacking in PSAU. All the three collaborators are equipped with laboratories and computing facilities. Holy Angel University has basic laboratories for engineering discipline (Energy Conversion Lab, Mechatronics Lab, ECE lab and ICT lab). PSAU has applied laboratories for important commodities (Feed testing, Nutraceutical lab, and ALIAS). It is interesting to note that PSAU has institutionalized these commodities into R&D Centers. Furthermore, SU has laboratory for water analysis and food sciences. As for the need of third parties in a joint R&D continuum, HAU, PSAU, and SU suggested to seek local and foreign fundings. Finally a proposed roadmap for HAU and PSAU Research Collaboration is presented. The roadmap is highlighted by both the general and specific strategies. The roadmap is developed based on the example developed by Duman(2013).

For the **general strategies**, a) Invite the main players of WEF Nexus R&D from the three HEIs for brainstorming, b) Trans-boundary observation of best practices and approaches for WEF Nexus R&D, c) Initiate dialogue with key researchers in WEF Nexus R&D in both countries to improve research excellence, and d) Intellectual Property Rights information exchange in WEF Patents.

For the **specific strategies**, a) Custom-made assistance for frontier WEF Nexus R&D, b) Develop organic relationship of WEF Nexus R&D with local and international industrial partners, c) Private-Public Partnership and participation of Small and Medium Industries in WEF Nexus, d) Multi-disciplinary involvement of researchers to define challenges in WEF Nexus researches.

CONCLUSIONS

The study presented a roadmap for research collaboration that is crafted using a platform. In this case, the water- energy-food nexus concept is used to connect the engineering base of a private university with the applied agricultural mandate of two HEIs (local and abroad). The thematic R&D output is a blending of what is in HAU, PSAU, and SU in support of water-food-energy nexus. Moreover, the study benchmarked three universities in eight(8) key questions using the Delphi method. Although such method is deemed useful, the researcher considers the effect in the research result should a live discussion had taken place with the participants instead. The results on the written questionnaire could also be subject for further in-depth elaboration. The study is also limited to university research experts in eight(8) areas alone. There could be more experts in those areas also qualified as participants but not interviewed in this research.

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Papers



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Inter-cultural Competency: Its importance in Building the Global Communities in Campus

Intercultural Competency: Its Importance in Building the Global Communities in Campus

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Abstract: One of the main drivers of internationalisation of higher education is that of global, intercultural and international learning outcomes to the community in the higher education institutions. Hence, international competence is perceived as an important and significant element of global readiness. Often universities internationalise Higher Education Institutions (HEIs) campuses with a view to enhancing the intercultural awareness of the students. However the focus is often given to the student's intercultural competence as the outcome of internationalization. There is not much focus given towards preparing the campus as a global campus and how every populace in the campus needs to be intercultural competent in order to establish a truly global campus. A global campus is described as a campus where the services given, the hospitality and the activities are centred towards the international students providing them with a good student experience. Often this issue is not being address as most higher education institutions in the west are English-speaking country. Challenges occurs in a non-English speaking countries or universities. In achieving the status of a global campus, it is important to prepare the community in the campus on intercultural topic in order to be intercultural competent. This is to ensure that the international students obtain HEIs intercultural competence skills and experience as well. The work conducted focuses on the importance of intercultural competency to the university community i.e. the support staffs, the local students and also the academics. Through the knowledge obtained and positive attitude it will assist the process of dealing with international students, creating a better understanding and professional global environment.

Keywords: Internationalization of Higher Education, Intercultural Competency, Intercultural Training, Global Communities

[1]

Introduction

The idea of internationalization of higher education institution (HEIs) has become one of the main agenda of most universities globally. However, it is a complex process with multiple challenges, which have not yet been sufficiently addressed by universities. This is due to the fact that to make the internationalization concept embraced and practiced, it requires the university to transform its mind-set and pushed every stakeholder to take up the concept. Often internationalization is being pushed by a group of people especially at the international office resulting the internationalization concept is not embraced as a whole at the university level. Whilst, the cooperation and contribution towards the successful of the internalization liaised on every section in the university governance. It is not a one-man job.

Internationalization is often associated with internationalizing the curriculum and student mobility. This means that the home university is taken into account of having international specific curriculum and encouraging home students to go abroad and partner universities to send their students to the home university. These efforts known as student mobility can often be seen to offer good learning experience for the students. Students might develop desired international and intercultural perspectives. In order for the partner universities to offer the student placement in HEIs university, it requires a long-term collaboration. This will go beyond the normal way of communication, as only with trust and solid collaboration between both universities, internationalization between both parties will succeed. Although inbound and outbound student mobility may be one of the method to promote internationalization concept at the higher learning institution, it may not necessarily be the only or the main method to promote the concept. Another method that will assist the Higher Education Institution (HEIs) in becoming more internationally friendly will be the internationalization of the curriculum.

Internationalization of the curriculum is the incorporation of international, intercultural, and/or global dimensions into the content of the curriculum as well as the learning outcomes, assessment tasks, teaching methods, and support services of a program of study (Leask, 2009). An internationalized curriculum will be able to engage students with internationally informed research and cultural and linguistic, diversity and purposefully develop HEIs international and intercultural perspectives as global professionals and citizens (Leask, 2009). Based on the statements, it is clear

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that there is a link between international and intercultural in the formal and informal curriculum. Hence, there is a need for the HEIs to develop a holistic approach to internationalization, through which incorporates wide-ranging strategies. It involves not only student mobility, collaboration with partners but also the formal and informal international curriculum.

Internationalization of the curriculum is not just about international students providing the platform for international curriculum but it also brings the cultural experience for the home students. It provides a different set of values into the classroom, different ambience and different perception towards the topics or discussion among the students. The presence of international students may provide the driver for the process of internationalization of the curriculum and a resource to develop intercultural competence to the local students. However, the mere presence of international students does not determine the success of the internationalization established in a particular HEIs, it goes beyond the presence of the international students. It involves the formal and informal international curriculum and intercultural competence of every stakeholder in the HEIs. Therefore, internationalization of the curriculum is an essential component of the internationalization of HEIs and it does not only focus the curriculum in the formal class but also the informal ones. This is supported by Green (2005) who states that students should gain skills and international knowledge in the campus through the informal classes and in formal classes. Basic international learning courses in the formal classes include those courses with universal and international subjects, learning foreign languages, or establishing courses, which are not particularly international, but emphasize on international issues and the informal classes is through the interaction and activities with the local campus community or the community outside of the campus.

Therefore, by providing the curriculum that focuses on both formal and informal class, a student is able to learn internationalization and become intercultural competent by various cultural views from different cultural group in these classes. This will be foundation for the students in order to achieve a position in a world community. This can be materialized through infusing international approach to the existing curriculums. This is inline with Hayward (2000), who states the main place for the international learning for the American students is the class, formal or informally.

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Besides providing the intercultural competency to the students, internationalization of the curriculum can also provide the international competitiveness of the HEIs. Curriculum with international content will make the graduates more competitive in the community, capable to meet the world standards, able to work in cross cultural contexts and sensitive to the people needs from other regions. The internationalization of the curriculum is also to assist in promoting self-development in this rapid changing world. With the internationalized curriculum it will assist in promoting student's development in being the global citizen, which is one of the most important goals of internationalization.

This paper will focus on enhancing the campus community intercultural competence, skills and confidence in order to provide the right ecosystem for internationalization in the HEIs via internationalized curriculum. Focus will be given on the informal internationalized curriculum as most research work had focus on formal internationalization of the curriculum (Leask 2015, Haigh 2002, Kemp and Frank 1996, Lieberman et al. 2008, Nilsson 2000, Sherlock 2002, Skelton 2002)

Internationalization Principles and Intercultural Competence

In promoting internationalization, Caruana (2007) has found a consensus around the principles of internationalization, which involves the awareness, and recognition of internationalization. He further emphasized that promoting internationalization are able through instill the awareness, shift in the thinking and attitudes of the stakeholders. This will recreate globalization in the form of social practices that confront of homogenization is required.

In addition, the awareness that internationalization in the context of higher learning and pedagogy has social, cultural, moral and ethical dimensions that narrow economic focus and establish a synergy with other agenda. As stated above there is also the need to recognize among the stakeholders at the HEIs, that internationalization is more than simply the presence of international students and sending the local students abroad; and the recognition for internationalization is a long term process of 'becoming international' or developing a willingness to teach and learn from other nations and cultures which involves more than one country.

Therefore, in materializing these principles; Middlehurst and Woodfield (2007) have outlines the rationales found in institutional internationalization strategies , which should focus on:

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- Teaching and learning that looks into curriculum design, approach to teaching, opportunities to go abroad, collaborative programs and research
- Research which involves capacity building (staff and student recruitment) developing an international knowledge base, joint programs and new funding opportunities
- Cultural that focuses on intercultural understanding, diversity, respect, communications (languages), global citizenship
- Reputational that centers on securing international standing and branding
- Economic and market led where matters on fees income from overseas student recruitment, generating research funds and consultancy income is analyzed and viewed
- Managerial of the human resources capacity where the emphasis on the organizational efficiency, co-ordination and centralization to avoid duplication of activity and maximize viability is focused o
- Developmental of the capacity building in terms of research and teaching is required.

As the focus of the paper is on the intercultural competence, and how it influences and promotes internationalization, this intersection requires the faculty, staff and administrators to help the students to understand multiculturalism and social justice in the global context. The need to develop intercultural skills, broaden attitudes to appreciate the complexity of the local and global world, examine values, attitudes and responsibilities for local/global leadership. At the same time, it is related to the network or relationships, experience and develop skills to work together. It further can prepare students to cooperate and compete in a multicultural and global workplace.

Intercultural competence is an important and significant element of global readiness (Gregersan-Hermans, 2017). In general universities internationalize the campuses with a view to enhance the intercultural awareness and understanding of HEIs students and thereby HEIs ability to function in the globalized world. Therefore, the universities are now moving forward towards student mobility, internationalization at home and internationalization of the curriculum in order to achieve this.

However, it is apparent that achieving internationalization curriculum is not automatic, in which students who goes abroad will have the necessary intercultural competency. Often

internationalization focuses on output. Hence, enhancing student mobility through increasing the number of international students coming in or providing internationalized environment does not mean intercultural learning happens or leads to intercultural learning.

Hence, the mobility programs need to be designed accordingly to ensure that intercultural learning materialized. Increasingly universities who have been promoting internationalization are aware that intercultural competence should not just be for the students who participate in the going abroad program or for incoming international students, but for all students including the locals. Therefore, it is important to deliberate how to create intercultural learning opportunities that can benefit all students. This is important as all graduates will need the necessary skills to function in the globalized world, hence the need to include all students, including staffs and academics in the intercultural learning opportunities (de Wit and Hunter 2015).

Research has shown that an intercultural student will only begin appreciating the complexity of another culture and seeing how different aspects of that culture is interrelated, when the experience of another culture makes students more aware of how HEIs own culture works. This is when the students have developed HEIs intercultural competence. Therefore, intercultural competence can be conceptualized as an awareness of one owns cultural perspective and appreciation of the overall importance of culture; and empathy for others as fellow human beings, deserving dignity and respects; and ability to adapt one's culture preferences to such differences, expanding one's identity and ability to communicate cross cultures. Hence both awareness and empathy are necessary prerequisites for demonstrating respect, which in turn is essential for creating shared and inclusive contexts.

As intercultural competence is one of the factors to assist in providing the ecosystem for internationalization at home, it is important and significant element of global readiness. Therefore, those elements need to be established in the campus environment. To establish the intercultural competence amongst the students and other community at the university, it requires careful planning and establishment of necessary actions or curriculum. Higher education institutions have the topic intercultural competence as a subject taught in a classroom. It is more theoretical based and covers to only a group of students who are enrolled for the class.

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The Development of intercultural Competency Curriculum

In establishing the curriculum for intercultural competence, there are three major group in the HEIs, namely the students, academic/professionals and the support staff, a holistic approach is required. Issues faced by the HEIs which relates to internationalization at home needs to be addressed. Some of the issues faced by HEIs, particularly in Malaysia are lack of hospitality, the locality mindset and lack of understanding of intercultural difference. The lack of hospitality cuts across the campus in which targeted groups identified earlier needs to be given the training to embrace the intercultural competency concept. To develop the intercultural competency curriculum, Deardoff (2006) intercultural competency model is looked into. The model is shown in Figure 1.

Deardoff emphasized on the importance of each component in the model and how it will shape the understanding of intercultural differences and to assist in providing the tools to assess the intercultural competence as a student outcome of internationalization efforts. The four components in the model are:

- Requisite attitudes namely respect (valuing other cultures), openness (withholding judgement), curiosity and discovery (tolerating ambiguity). The degree of this underlying personal component will determine the interactive level of the person and the degree of the intercultural competence.
- Knowledge and comprehension on the culture and sociolinguistic awareness. This will shape one's ability to understand the context, role and impact of culture and other world's view. The knowledge is obtained through listening, observing and evaluate, analyzing, interpreting and relating it with the present situation.
- Desired outcome, which is the informed reference shift where the person is able to adapt, flexible, ethno-relative view empathy.
- Desired external outcome is the result where the person will be able to engage in a meaningful effective communication and behaves in an intercultural situation.

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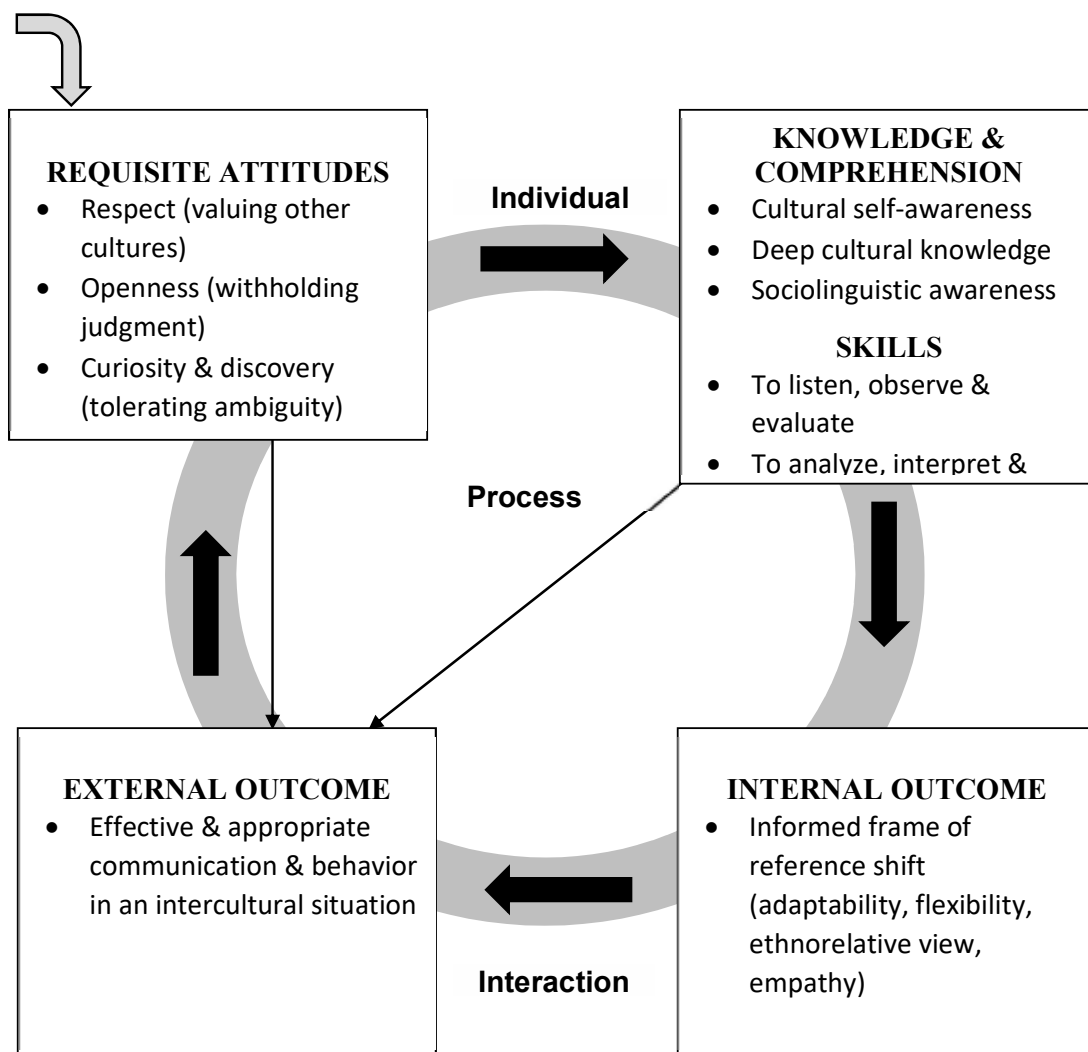


Figure 1: Deardorff Process Model of Intercultural Competence (2006)

In general, the model outlines the relationship between attitudes, knowledge, and internal and external desired outcomes. The curriculum and the module are designed based on these components. As the requisite attitudes cover on aspect such respect, openness, curiosity and discovery, the topics covered in this component will be more on psychological aspect which one will discover oneself via self-understanding, the attitude that he/she has and how childhood background has shape them in terms of HEIs attitudes and skills such as listening, observation, analyzing and interpreting.

The knowledge and comprehension focus very much on culture and sociolinguistic awareness, therefore the module covered will be on the introduction to internationalization, basic communication with heterogeneous community, culture and also dealing with conflict.

The third module focuses on Deardoff's component of desired internal and external outcome, which combines the other two components of Deardorff's model. The module will focus heavily on the theory of intercultural competency and topics on negotiation, creativity, innovation in multiculturalism a cultural value dimension. Each of the topics will be coupled with exercises that may involve group work, presentation, experiential learning exercise, problem-based learning or role-play using various methods of delivery via conventional teaching or digital media.

The modules are designed to provide the platform for the respective groups identified to know themselves better in terms of HEIs attitude in respecting other, HEIs values and how they perceive others, HEIs level of openness and whether they are prejudging others beforehand. Self-discovery will be conducted using the identified tools. Upon understanding oneself and discover the level of openness, curiosity and respect only then the individual will be able to be aware and thinking of ways to react. The reaction required in order to encourage intercultural communication, can only be executed upon having the knowledge. This is where the module 2 plays a function. During Module 2, more experiential learning activity will be given in order to strengthen the realization and awareness, which leads to better attitude and understanding others. Upon completion of module 2, the respective members will acquire the necessary knowledge on intercultural, culture and internationalization, and coupled with the realization, it will give the participant deeper awareness. Module 3 will then assist the groups in case based experience, which involves on the real life actions and behavior needed upon awareness and this is conducted via the experiential

learning, problem based and role-play exercise. The performance evaluation of each participant will indicate the participant's level of understanding and responds towards actual situations occurs in normal day to day operation involving the international students.

Conclusion

The work presented is at its preliminary stage, however it is believed that the intercultural competency module when its executed via the training will create human resources who are more open, culturally sensitive, and able to listen to understand and intercultural aware. Through the positive characteristic develop through the training and constant monitoring and evaluation, will assist the participant in giving better respond reaction in the day to day dealing with the international students. This will create a better understanding and professional environment filled with hospitality, which will store away the usual negative perception by the international students. As the module are tailored to the respective groups namely the students, academics and administrators and the support staff, it will help the HEIs to address the issues identified at different levels and provide a wider coverage of establishing a hospitable professional environment. These are the groups of people who deals with the international students, and by providing the training it will assist this group of people to better understand the international students and others better and in return will have more empathy, self-cautious and hospitable to the others from other regions.

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Papers

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Relationship Between Self-Efficacy and Stress among Real-Estate Management Students

Relationship Between Self-efficacy and Stress Among Real Estate Management Students

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Abstract

To maximize Real Estate Management (REM) students' professional practice, they are expected to pass two (2) Licensure exams after graduation and another one after 5- 10 years. The first licensure exam REM students are required to pass, is the Real Estate Brokers' exam usually scheduled two (2) months after graduation. Compared to other programs in Business Administration, the REM's academic demand is higher. Hence, REM students often face a more stressful situation. While stress can work as a good motivator, it can also affect students' self-efficacy. When the level of stress gets too high, it can put too much pressure on students that may result in questioning their capacity and their ability. Self- efficacy, on the other hand, plays a critical role in how students see themselves. Stronger perceived self-efficacy affects the student's ability to believe in themselves strongly and their ability to accomplish goals.

The purpose of this study is to measure the relationship between self-efficacy and stress. The participants accomplished the self-efficacy and stress questionnaire. An exploratory factor analysis was used to reduce data to smaller variables and to investigate the fundamental theoretical structure behind self-efficacy and stress. The analysis revealed three factors, academic responsibility, academic commitment, and social support explained 71.02 percent for self-efficacy on the variance for the entire set of variables with KMO and Bartlett's Test of Sphericity (1113.404; $p = 0$). Three-factors, time management, academic expectations, and academic role, explained 66.66 percent for stress on the variance for the entire set of variables with KMO and Bartlett's Test of Sphericity (959.78; $p = 0$). Regression analysis revealed that Academic responsibility and social support were significant predictors of stress.

Keywords: Self-Efficacy, Stress, Students, Exams

Introduction

For a private higher educational institution (HEI), the low cohort in the final academic year affects the academic planning and place an added burden on the efforts to create a successful academic program (Symaco, 2013). Especially among students enrolled in board courses, failing to pass the government licensure exam represent the HEI's shortcoming (Ordonez & Ordonez, 2009).

Albert Bandura, a social psychologist, defined self-efficacy as the student's internal belief about their ability to influence the events that affect their academic goals. In the context of stress, self-efficacy is the belief of students to handle stressful situations. Several researchers revealed that a high level of self-efficacy make student increase their feeling of control in their academic task consequently decreasing negative stress.

Self-efficacy theory assumed that students gathered information to evaluate efficacy belief from four primary sources: present academic performance; observation of other students; persuasiveness; physical and affective state (Bandura, 1997). Among the four primary sources, the present academic performance is the strongest source on self-efficacy because it provides the most concrete, realistic evidence on the student's ability to muster resources and ability to succeed academically (Choi, 2005).

This study examines the social cognitive factors – academic self-efficacy and stress (Bandura, 1989) among Real Estate Management (REM) students. Presently, Real Estate Service Act (RESA) of the Philippines requires a bachelor's degree in Real Estate Management (REM) and pass the Philippine Regulatory Commission (PRC) real estate broker's exam (Bernardino, 2016). Considering all other things equal, students with greater self-efficacy have a greater chance of passing the licensure exam (Holden, Barker, Rosenberg, & Onghena, 2007). On the contrary, even among second licensure exam takers who attended e-coaching stated higher self-efficacy pre-survey scores compared to those who passed (Anthony, Gimbert, Fultz, & Parker, 2011).

Methods

The study used the universal sampling method; all Real Estate Management (REM) students for the second semester school year 2017-2018 from the College of Business Administration Education participated. The study adopted the 10-Likert scale instrument (Zajacova et al., 2005) developed that measure self-efficacy and stress with the same college-related task. Some of the items they choose selectively from (Lent, Brown, & Larkin, 1986) Academic Milestone Scale or from (Solberg, O'Brien, Villareal, Kennel, & Davis, 1993) College Self-Efficacy Inventory. Forty-four students participated in the study.

A cross-sectional, correlation study was conducted to determine the significant relationship between self-efficacy and stress (Hall & Lavrakas, 2008) (Sveinsdóttir, Biering, & Ramel, 2006) among Real Estate Management students. Presented in two parts were the analyses. First, the researchers examined the data through exploratory factor analysis (EFA) to determine if self-efficacy and stress are reducible to a small subset of indexes getting a different measurement of each. EFA determined the factors needed to explain the correlation among the 26 indicators for both self-efficacy and stress. In this manner, the researchers identified the latent variable or factors. Second, the significant self-efficacy and stress factors were correlated. The correlation tried to determine the inverse relationship between self-efficacy and stress and the degree to which self-efficacy and stress are linearly related. Expectedly the increase/decrease in self-efficacy corresponds to a decrease/increase in stress (Allen, 2017). Afterward, a multiple regression analysis was applied to determine the predictive value of the level of self-efficacy to the level of academic stress (Steinhardt & Dolbier, 2008).

Results and Discussions

Twenty-seven questions relating to academic self-efficacy and stress were factor analyzed using principal component analysis with Varimax (orthogonal) rotation. The analysis yielded three factors for both self-efficacy and stress explaining a total of 71.02% for self-efficacy and 66.66% for the stress of the variances for the entire set of variables. For self-efficacy factor 1 was labeled academic responsibility. The first factor explained 49.07 percent of the variance. The second factor derived was labeled academic commitment. This factor explained 11.52% variance. The third factor derived was labeled social support. The third factor

explained 10.42% of the variance. The KMO and Bartlett's test of Sphericity (1113.404; $p = 0$) both indicate that the set of variables are least adequately related to factor analysis.

Table 1. Factor loadings and commonalities based on a principal component's analysis with orthogonal rotation for 27 items from the REM student's self-efficacy (N = 44)

	Academic responsibility	Academic task	Social support
Keeping up with the required readings	0.886		
Managing time efficiently	0.878		
Preparing for exams	0.826		
Writing Research requirements	0.775		
Researching topic papers	0.765		
Having more tests in the same week	0.757		
Getting papers done on time	0.742		
Managing both school and work	0.726		
Improving my reading and writing skills	0.726		
Doing well on exams	0.644		
Finding time to study		0.847	
Doing well in my major class		0.840	
Getting help and information at school		0.810	
Understanding my textbooks		0.790	
Understanding college regulations		0.694	
Talking to college staff		0.684	
Getting along with family members			0.913
Making friends at school			0.755
Talking to my professors			0.685
Having enough money			0.632
Participating in class discussions			0.626
Asking Questions in Class			0.611

Note. Factor loadings $< .6$ are suppressed

Similarly, for academic stress, factor 1 which explained 49.73% of the variance was labeled time management. The second factor derived was labeled academic expectations. The second factor explained 9.13% of the variance. The third factor derived was labeled academic role. This factor explained 7.082 percent of the variance. The KMO and Bartlett's test of Sphericity (959.78; $p = 0$) both indicate that the set of variables are least adequately related to factor analysis.

Table 2. Factor loadings and commonalities based on a principal component's analysis with orthogonal rotation for 27 items from the REM student's stress (N = 44)

	Time management	Expectations	Academic role
Finding time to study	0.827		
Talking to college staff	0.811		
Managing time efficiently	0.811		
Getting help and information at school	0.793		
Getting papers done on time	0.792		
Managing both school and work	0.773		
Preparing for exams	0.728		
Keeping up with the required readings	0.671		
Understanding my textbooks	0.638		
Doing well in my major class	0.614		
Understanding my professors		0.877	
Having enough money		0.760	
Getting the grades I want		0.661	
Doing well on exams		0.641	
Talking to my professors		0.603	
Asking Questions in Class			0.861
Studying			0.855
Getting along with family members			0.608

Note. Factor loadings < .6 are suppressed

Academic responsibility

Taking exam or test is an academic responsibility which has neither high nor low level of self-efficacy among real estate management students. Generally, students' level of self-efficacy in taking the exam and test anxiety influence their academic success (Abdi, Bageri, Shoghi, Goodarzi, & Hosseinzadeh, 2012). Although test anxiety and self-efficacy can predict exam grade, self-efficacy can moderate the effect of anxiety (Barrows, Dunn, & Lloyd, 2013). Students identified time management as an indicator of academic responsibility in which they revealed neither high nor low level of self-efficacy. However, time management alone is not enough for students to effectively meet their academic responsibility.

Academic Commitment

A longitudinal study demonstrated that even among first-year students' academic self-efficacy and commitment to stay in school were related to academic performance (Chemers

[5]

et al., 2001). However, students who set goals increased goal commitment especially, if these were set goals increase self-efficacy (Schunk, 1991). Thus, students with a neutral perceived self-efficacy and the moderate goal challenges REM students set for themselves the mediocre is their level of academic commitment (Bandura, 1993).

Academic success and retention policy implemented in the REM program is to professionalize the industry since the government does not allow any individual to facilitate any real estate transaction without a license. Therefore, the student's fair academic commitment is an indicator of self-efficacy in the context of the attrition rate in the program. Consequently, both self-efficacy and academic commitment predict student grades (Vogel & Human-Vogel, 2016). Since commitment, a known dimension of academic hardiness is a positive predictor of self-efficacy, the students' marginal level of commitment showed a similar marginal level of self-efficacy (Jang & Liang, 2016).

Social support

Researchers recognized the importance of social support as an indicator of self-efficacy. The marginal level of social support that students expressed indicated a marginal level of self-efficacy and a moderate level of students' ability to cope with stress (Dwyer & Cummings, 2001). Students adequately received a slightly high level of social support in classroom participation. Admittedly, the marginal high level of student's classroom skills such as asking questions and participating in the discussions is increasingly becoming important as they take professional courses which connote a direct effect on academic self-efficacy on classroom performance (Chemers et al., 2001).

Academic stress

It was evident that students possess the adequate awareness that academic stress impedes grades and performing better. Better REM students' time management behavior even under a different level of academic stress reduce vulnerability to stress (Claessens, Van Eerde, Rutte, & Roe, 2007). A slightly low level of academic stress REM students experienced on understanding textbooks and keeping up with required reading revealed that they could handle unique challenges such as the additional time required to read assignments, understanding lectures, and discussions and follow communications (Dao, Lee, & Chang, 2007). Although preparing for the exam was associated with academic stress, REM students

find sources of academic stress as a result from studying for and taking exams, it did not lead to a higher level of stress perhaps attributed to maintaining regulatory behavior (Oaten & Cheng, 2006).

Academic expectations

Academic stress and academic expectations are closely related to each other (Ang, Huan, & Braman, 2007). REM students exhibit only a slightly low level of academic stress from academic expectations. An indicator of a lesser perceived academic stress from expectations (Ang & Huan, 2006). The moderately low level of academic stress of REM students is a demonstration that they did not find it difficult to meet the teacher expectations (Tan & Yates, 2011). However, the REM students' slight high level of stress arises from their self-expectations, feeling that they did not live up to their own set of standards (Huan, Yeo, Ang, & Chong, 2006). The student's positive reaction from academic stress as a result from interaction with the professor expected grades and performing well in exam demonstrated an acceptable level of response to a stressor which includes psychological, emotional and behavioral reactions (Misra, Crist, & Burant, 2003).

Academic role

The slightly low level of the academic role is attributable to the positive role models REM students acquired from their academic environment (Castellanos & Jones, 2003). The student's healthy response to their academic role showed that they are experiencing better mental health, a more engaged learner with a healthy coping approach during academic stress (Field, Duffy, & Huggins, 2013). Such appropriate coping approach is further attributable to confidence in their academic role and ability such as asking questions in the class or studying that is suggestive of a manageable student academic stress level (Kell, 2007). The low level of academic stress is a sign of the student's normative model experiencing greater satisfaction with the university, wellbeing and academic role (Stagman, 2011).

Academic Self-efficacy and Academic Stress

Multiple regression analysis was used to test if the REM student's academic self-efficacy significantly predicted ratings of academic stress. The result of regression indicated two predictors explaining 51.2 percent of the variance ($R^2 = 0.512$, $F(3, 43) = 13.98$, $p < 0.01$). It

was found that academic responsibility ($\beta = -.344$, $p < .01$) as did social support ($\beta = -.429$, $p < .01$).

Table 3. Summary of Multiple Regression analysis for REM Student's Academic Stress (N = 44)

Variable	B	SE (B)	β	t	Sig.
(Constant)	9.270	.776	-	11.95	.000
Academic responsibility	-.344	.103	-.422	-3.344	.002
Academic commitment	.023	.105	.030	.222	.825
Social support	-.429	.129	-.445	-3.326	.002

$R^2 = 0.512$

Regression analysis showed that academic self-efficacy could moderately predict the level of student stress (Lavasani, Khezriazar, Amani, & Malahmadi, 2011). Specifically, an increase in academic responsibility (Sternberg & Subotnik, 2006) and social support (Rayle & Chung, 2007) decrease academic stress. Most students identified the increase in writing research requirements (Divaris, Polychronopoulou, Taoufik, Katsaros, & Eliades, 2012), test (Appelhans & Schmeck, 2002), managing both school and work (Singh, 2011) and improving reading and writing skills (Phakiti & Li, 2011) as a source of source of academic stress.

The regression model showed that the greater level of social support the lower level of stress effect among REM students (Negga, Applewhite, & Livingston, 2007). Notably, the model affirmed that the student's social networks such as making friends and talking to professors significantly reduce academic stress especially, informational supportive, communicative behavior from family and friends (MacGeorge, Samter, & Gillihan, 2005). Also, students receiving regular interactional support built more effective coping strategies allowing them to manage stressful academic environment (Steinhardt & Dolbier, 2008).

Conclusion

The research showed the three significant factors existed in REM student's self-efficacy; academic responsibility, academic task, and social support. Similarly, three identified significant factors existed in stress; time management, expectations, and academic role. The result of this research showed that academic responsibility and social support are the significant negative predictors of stress among REM students. The findings of this research are useful for the REM program coordinator to decrease academic stress by improving student's self-efficacy, particularly academic responsibility and social support.

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Posters



Johnny Than

An Investigation into the Effectiveness of Using Computer-generated Graphics in Teaching Contour Lessons

An Investigation into the Effectiveness of Using Computer-generated Graphics in Teaching Contour Lessons

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***Abstract:** The primary purpose of study was to investigate the effectiveness of using computer-generated graphics in learning contour lessons. This study was conducted in Practising High School, Shwe Min Wun, Sagaing Township. The sample of this study consisted of (30) Grade 9 students for the control group and (30) Grade 9 students for the experimental group. Random sampling and an experimental design were used in this study. As a research instrument, a set of computer-generated graphics and question items were developed. The independent samples t test was used to ascertain the significant difference between the control and experimental groups in the achievement of learning contour lessons. The mean scores obtained by the experimental group were higher than that of the control group. It showed that there was a statistically significant difference between the experimental and control groups for all items ($t = .10.701$, $df = 58$, $p < 0.001$). The research also showed that using computer generated graphics in teaching contour lessons was more effective than without using computer generated graphics in teaching contour lessons. In conclusion, this study could help the geography teachers how to interpret and discriminate the different kinds of contour lines with the use of computer-generated graphics in learning effectively and systematically.*

Key words: computer-generated graphics, collaborative process, contour lines

Background of the Study

Education is the heart of a country and a process of human empowerment. The necessity of education for individual growth and social development is now accepted by everyone. It envisages that it will best serve the developmental needs of the society. Hence, it is necessary to build an education system by utilizing learner potentials towards economic prosperity of the nation. Education is the reconstruction of events that compare the lives of the individuals, so that new happenings and event become more purposeful and meaningful (John Dewey, n.d., cited in Indra & Begum, 2009).

Education is now universally recognized to be prime key of moral, cultural, political and socioeconomic development of a nation. Hence, most countries invest in education. Consequently, the place of the teacher as an essential factor for educational development is of prime importance. In addition, education is the social instrument through which one can guide nation's destiny and shape its future (Panda, 1988, cited in Akram, 2010).

Salter (1986, cited in Indra & Begum, 2009) stated that selecting teaching strategies is very important to educate the learners. How teachers teach is not so easily influenced as what they teach. There is sometimes narrowness in the range of teaching methods characterized by over-long expositions, over directed styles inhibiting curiosity and initiative and discussions mediated by and through the teachers, all which reduce opportunities for developing thinking. Also some teachers intervene too quickly and then provide an answer in their own words. Successful learning involves knowing what to do to bring about the desired pupil learning and being able to do it. Even though recent years have seen the increasing standardization of the aims and content of geographical education, teaching geography remains a very personal activity. A range of teaching styles and strategies can be used to bring about learning through geography.

Geography is the study of the earth's surface and the processes that shape it; of places and their connections to other places; and of the relationship between people and environment (National Geographic Society, 1989).

Today's teacher uses methods to enliven and enrich traditional teaching. Another purpose of using teaching methods was, to adjust to the diversified needs of the learners. Although there are many teaching methods for the teacher to use effectively in the class room, some teachers use only conventional teaching method in which the teacher asks students to listen attentively and read loudly role by role and then rewrite important key words on their books from text book. Therefore, the students are not interested in learning. The role of the students is passive participant in teaching-learning process. And they do not have opportunities to do and think independently.

In the 21st Century, advances in science and technology were very rapid, and great changes occurred. Computer technology advanced very fast. The use of computer technology has become greater and more widespread in every social infrastructure, and education, health, economic, and commercial sectors. In recent days, 2D (two dimension) graphics and 3D (three dimension) images can be used in teaching basic contour lessons that can be generated by using a computer technology and software centered strategy in which the computer is the major information provider is also being developed instead of teaching by the teacher in education field. Therefore, to be effective in teaching geography contents, geography teachers should be aware of modern technology and educational technology and try to apply them in teaching-learning process effectively and systematically. So this study was conducted to investigate the effectiveness of using computer generated graphics in teaching contour

lessons. This study “the effectiveness of using computer generated graphics in teaching contour lessons” will support a base for the improvement of teaching-learning process.

Objectives

The objectives of this study are as follows:

- To investigate the effectiveness of using computer generated graphics in teaching contour lessons
- To be able to number the contour lines correctly
- To be able to analyze the slopes of the contours in detail
- To be able to describe different kinds of mountains
- To be able to discriminate between spur and valley
- To give suggestion based on the results of the study for the improvement of teaching-learning process

Research Hypothesis

It was hypothesized that teaching basic contour lessons using computer-generated graphics was effective. The following hypothesis was tested;

There is a significant difference between teaching basic contour lessons using computer-generated graphics and teaching basic contour lesson without using computer-generated graphics.

Review of Related Literature

Theory of Pragmatism

Pragmatism, is the only one that originated in the United States. Pragmatism, sometimes called experimentalism or instrumentalism, was developed in opposition to the principles of idealism. Ideas alone are not sufficient for reality, said the original pragmatists; action on these ideas is necessary to determine their value. The pragmatists grounded their thinking in present actualities and used the scientific method to solve present problems. For pragmatists, "experience" was the medium in which thought (ideas) and action mix.

Pragmatists see education as the reconstruction and reorganization of human experience. Educators should provide conditions that allow students to grow. They see the student as an organism capable of solving problems. The teacher, for the pragmatist, is also a continuous learner who aids and guides others in the learning process without pretending to be the only

source of knowledge. Teachers do not abdicate their responsibilities, they arrange conditions for learning related to students' needs and interests.

The curriculum of the pragmatists would consist of any experience contributing to growth and would be based on the needs and interests of the learner. Thus the subject matter is centered on the problems and needs of the learner, not on universal moral laws as the idealists advocate or on the cause and effect relationships championed by the realists. The project method, individual problem-solving research, and class discussions are the methods of the pragmatists, who encourage students to become self-directed learners. As Rosen (1968, cited in Hessong & Week, 1991) wrote, "Pragmatic method is rooted in the psychological needs of the students, rather than in the logical order of subject matter. Thus, method is nothing more than the helping of the student to use intelligence and the scientific method in the solution of problems that are meaningful to the child."

The pragmatic method involves the five steps of the scientific method. John Dewey (n.d, cited in Hessong & Week, 1991) outlined them in the booklet. The first step is recognition of the problem. It begins with an uneasy feeling that something is wrong, which Dewey(n.d, cited in Hessong & Week, 1991) called the "felt need." The second step is definition of the problem in terms that all participants can accept. The third step is formulation of hypotheses or tentative solutions to the problem. Consideration of both the positive and the negative consequences of each possible solution is the fourth step in the process. In the final step, each possible solution is tested and the one "best solution" is chosen on the basis of the test results. It should be added at this point that pragmatists are very suspicious of broad generalization (Hessong & Week, 1991).

Teaching aids are valuable instructional tools that can help make learning more effective and interesting. They facilitate learning through the stimulation of the senses. To be effective, aids should be well constructed to gain the learner's attention and sustain interest.

Type of Teaching Aids

The various teaching aids could be summarized under the following categories:

- (a) Community Resources
- (b) Visual Aids
- (c) Auditory Aids
- (d) Reading materials
- (e) Lectures.

Audio-Visual aids are of three types.

- (a) The visual, e.g., graphics, map, globe, picture-producing no sound and motion
- (b) The Auditory, e.g., radio, tape recorder, record player producing sound but no pictures
- (c) The Audio-Visual, e.g., television – producing sound and motion pictures.

Among the visual aids required in colleges or institutions of higher learning are specimens, maps, charts, film strips, globes and the pictures. They are either real or projected. When efficiently used, their basic attributes are reality conveyed to the class. The projected materials constitute a class: sound or silent films, filmstrips, slides and epidiroscope. At the moment, the radio, television, tape recorders, record players are the most sophisticated teaching aids that are available. Nevertheless, all these have their merits and demerits (Indra & Begum, 2009). Moreover, the Internet is also the most sophisticated teaching aids.

Selection of Audio- Visual Materials

Adequate teaching aids should be made available to accomplish effective teaching in geography. To be effective, aids should be used to achieve definite objective and they should be well constructed to gain the learners' attention and sustain their interest. It follows, therefore, that teaching aids must be carefully selected and used. When selecting teaching aids, teachers should apply the same guidelines used when choosing-learning activities. These are:

- (i) Teaching aids should be used to achieve specific objectives;
- (ii) Teaching aids should be used to the maturity level of the students;
- (iii) Teaching aids must be used with skill and understanding.

The choice of aids is, therefore, guided by various considerations or factors. In more specific terms, the following factors should be borne in mind in selecting teaching aids:

- (i) Appropriateness, i.e., it is relevant to the topic being discussed
- (ii) Level of sophistication of the students- this refers to the age or level of maturity of the students;
- (iii) Cost Effectiveness. This is very important. It has the ability of making appropriate software rather than depending on commercially produced materials;
- (iv) Availability;
- (v) Technical quality – clear, bold and/ or produced in appropriate conventional symbols (Indra & Begum, 2009).

The Truth About Computerized Instruction

There is no question but that what Norbert Wiener called "the Cybernetic revolution" has begun to hit full stride. Automatic data-processing is having an impact on man's thought processes analogous to the impact of the industrial power tools on his work habits.

The speed and efficiency of computers naturally prompt the question as to whether they can speed up the learning process. Since computers can solve problems, perhaps computers can also teach problem solving. Computers are remarkable instruments, so perhaps they can assist in the learning process in some way. Such is the inspiration of a few zealots and, simultaneously, the fear of many traditionalists who are timorous about the possibility of "dehumanizing influences" of hardware in the classroom.

It is generally true that the less direct experience people have had with any machine the more people tend toward both fear and unreasonable admiration. There was a time when many thought that household appliances would turn housewives into electrical gadgets or that airplanes would make birds out of pilots. Laymen have heard much about computers but have had absolutely no direct experience with computers.

It is understandable then that many have visions of an ominous hostile-dependent relationship between the human and the "giant brain". This fear will only be dispelled by a more intimate acquaintance. Of all modern inventions, the computer is perhaps the most physically and psychologically benign. Computers will change our lives drastically. Those who work with computers like computers very much and have no fear of the instrument, nor are they the least concerned about the ultimate social consequences of its widespread use. Computers have not created unemployment as was once feared, and the use of computer in the classroom will not replace the teacher any more than the mixmaster has replaced motherhood.

On the other hand, it must be stated that every machine replaces a human or animal function. Once upon a time men dragged their belongings on sticks which slid along the ground. The wheel replaced dragging. Before the invention of dragging sticks, men carried their belongings in their arms. Before the invention of the computer, men performed the same operation by hand. There is nothing which the computer does which cannot, in principle, be done by human beings. The computer does it much faster and more reliably, thus allowing for greater-sometimes inestimably greater-total accomplishments. These accomplishments, however, are made by men assisted by computers, not by computers alone. This is true no matter how great such assistance may be.

If computers force us to redefine our concepts of ourselves as animals and human beings, it is because such concepts were weak to begin with. Before the invention of the computer, it is tended to believe that logic and memory-that is, reasoning-were unique characteristics as humans, making us superior even to the lower forms.

The computer, as a reasoning machine, which it definitely is, has forced us to change that concept, leaving us vague about our own human uniqueness. Some people feel it has detracted from that uniqueness, but there is a logical fallacy in that belief. The computer has only detracted from an erroneous concept, forcing us to new definitions of man. In the same stroke the computer provides the humanist with more time to ponder new concepts of uniqueness. There is more room for full professorships with computers than without computers.

As regards the application of computers to the teaching process, it is very valuable to see exactly what human functions the computer replaces. When computers are used it shall be forced to give up some of fears.

Countless experiments have shown that the physical presence of a human body is unnecessary to the learning process, providing the educational content is delivered in some other effective manner. This has always been true since the dawn of written language. It can be learned from Plato and Aristotle even though Plato and Aristotle are dead. Much of the time, in fact, it can be learned more from a man by reading what he writes than by talking to him in person. Recent advances in the preparation of learning materials which provide for a lot of responding by the learner have proved beyond the shadow of a doubt that teaching is best defined as the arrangement of information for learning, rather than as the physical presence of a human being.

Learning takes place only when an organism behaves. It takes place in that behaving organism. John Dewey was correct-learning is doing and general, the more we do the more we learn. Using modern methods, information may be presented to a learner in such a way that he does much more and thus learns much more than if the same information is presented through the mouth and hands of a living human being.

This does not mean that learners must be deprived of human interaction. Quite the contrary, the faster the learning, the more time remains for truly human interaction between persons. It is axiomatic of this view that any function which can better be performed by some automatic medium should be: that it is degrading for a human being, such as a teacher, to perform any task which a machine can do better (Slack, 1971).

Graphic and Object Media

Graphic and object media add a visual dimension to instruction. Unlike photographs, graphics can be used to provide simplified renditions of real things or show abstract ideas, such as geometric figures. There are also relatively easy to use. Graphic media are illustrations, predominantly pictorial, composed and rendered on various surfaces by artistic techniques. They are easily incorporated into other types of media. Most graphics contain visual designs, either abstraction or rendering of actual objects, and may include symbols. Graphics also are constructed by artistic techniques on opaque or transparent surfaces. Graphics, as distinguished from their display formats, include painting and drawings, diagrams and schematics, charts, and tables, graphs and maps. All graphics can be displayed in many formats. Graphics, including textbook illustrations, as well as photographic prints and small objects, can be projected by opaque projector. Two other ways by which graphics can be displayed are by photographic projection and electronic transmission.

Selection of graphics and object media depends upon how well they deliver information and fit the learning environment. Goals and objectives, decided before hand, function as bench marks for determining what information to present, what responses to require, and how instruction should be sequenced and paced. Graphics particularly are appropriate for presenting simplified renditions of real object or for depicting abstractions or abstract relationship. Traditionally, the design and production of artwork has been time consuming, labor intensive, and costly. Each visual has to be rendered by hand and then photographed or video recorded, if used in slides, film or television productions. Computer graphics systems are making generation and revision of artwork more productive by linking the creativity of the artist with capabilities of the computer. Graphics and objects also are limited in their presentation of verbal explanations. In classrooms they are generally viewed from a distance, so the amount of painted information must be limited to keep the item legible. Graphics and objects often are displayed simply for passive viewing. However, they can be designed and used so that students can respond actively by having teachers and trainers ask questions or students answer study questions and experiences. Pace of instruction can be determined by either instructors or students, depending on whether the material is used in a classroom or individually. Instructors or students can devote as much time or as little time to the study of these materials as they wish. Graphics and objects can be subject of teaching or means of teaching other subject. Graphics are the subject of teaching when interpretation of pictures and illustrations and graph-and map- reading skills are taught, or when graphics are produced in art classes. Graphics and objects media are means for teaching when teachers or trainers

use them to teach other subjects in classrooms or through individualized study. These programs teach visual communication by having students interpret and create visual messages. Instructors may adopt any display format when using graphics in classroom presentations (Locatis & Atkinson, 1984).

Above mentions are very important for teacher education field to update the education practices. Teacher should also study to cope with modern technology to apply in teaching-learning procedures in relevant with the subject matter. The teacher should try the best to be effective in teaching by using modern teaching design and teaching strategy because today's, conventional teaching method is gradually disappeared and out of date.

Therefore, it was decided to investigate the effectiveness of using computer generated graphics in teaching contour lessons.

Methodology

Subject

The participants for this study were selected from the total population of (125) students who are studying in Grade- 9 at Practicing High School, Shew Min Wun in Sagaing Township. The sample was composed of (30) students for the control group and (30) students for the experimental group.

Instrument

As an instrument, a set of computer-generated contour graphics and question items were developed based on the Grade- 9 prescribed text book at the middle school level. A set of computer-generated contour graphics including (14) subtopics (see Appendix A) and (14) question items were constructed. They were divided into three groups of items such as items of memorization from No.1 to No.5, items of visualization from No.6 to No.10 and more difficult items from No.11 to No.14.

Research Design

An experimental research design was used. Using a set of computer-generated contour graphics, students in the experimental group were taught how to study contour lessons. Independent sample *t* test was used to test the difference between teaching basic contour lesson using computer-generated contour graphics and teaching basic contour lesson without using computer-generated contour graphics.

Procedure

The main purpose of this paper is to test the significant difference between teaching basic contour lesson using computer-generated contour graphics and teaching basic contour lesson

without using computer-generated contour graphics and to perform actively by getting reasoning ability and critical thinking for the students in learning basic contour lesson. Therefore, the researcher developed problem-based learning with the use of computer-generated contour graphics to achieve these skills. Initially, the researcher created and prepared the computer-generated graphics to be used in teaching. The researcher identified the objectives of students' participation and generates the problems in line with the subtopics. And then the researcher constructed the test, especially to know the achievement of the students' participation in learning.

After making a set of preparations for teaching, the researcher conducted the research carefully and systematically. The sample of (60) Grade-9 students who participated in this study was divided into two groups: control and experimental. The researcher used the scores of Geography in the monthly tests of the students to divide them into two groups. Each group had (30) students.

In the experimental group, the students were divided into six sub-groups. At the start of the teaching, the researcher gave the students clear explanation about the contour and then they were given a set of computer-generated graphics one after another in line with the respective subtopics such as harmony slope, steep, slope, curve slope, mountain, spur, valley, etc (see appendix A).

The researcher let them discuss and find out the problems by looking at a set of computer-generated graphics through collaborative process. After giving some time to ascertain the solutions, the researcher asked the group of students who had done first to response the questions given. After that, the researcher discussed the solutions with the students and redirected them from misconceptions and misunderstandings.

As mentioned above, the researcher taught them the subtopics sequentially. At the end of the instruction, the researcher tested the achievement of students' participation in learning contour lessons. The test was constructed with (14) items. After that, the researcher gave feed back to them on what they made incorrect solutions and misinterpretations of the information by showing 3D (three dimension) images sequentially, and by using questioning techniques.

In the control group, the researcher taught the students without using computer-generated graphics. Firstly, the researcher asked them to read the passage one by one, row by row and the whole class and then gave explanations. After that, the researcher let them rewrite the passage in their note books for all the subtopics.

Research Finding

In order to know the difference between teaching basic contour lessons using computer-generated contour graphics and teaching the lessons without using computer-generated contour graphics, the independent samples *t*-test was used. The scores of the two groups of students were obtained from the question given. It was found that there were significant differences between experimental and control groups. The results of independent samples *t*-test are given in the table.

Sr.	Question items	Group	N	M	SD	<i>t</i>	<i>Df</i>	<i>p</i>
1	IoM	Experimental	30	4.43	0.728	3.349	58	.001**
		Control	30	3.53	1.279			
2	IoV	Experimental	30	3.77	0.679	15.073	58	.000***
		Control	30	0.73	0.869			
3	M D I	Experimental	30	5.13	1.889	5.346	58	.000***
		Control	30	2.73	1.574			
4	Overall	Experimental	30	13.40	2.127	10.701	58	.000***
		Control	30	7.00	2.491			

Table: *t*-value for significant differences between experimental and control group

Note: ****p*< .001, ***p*< .01

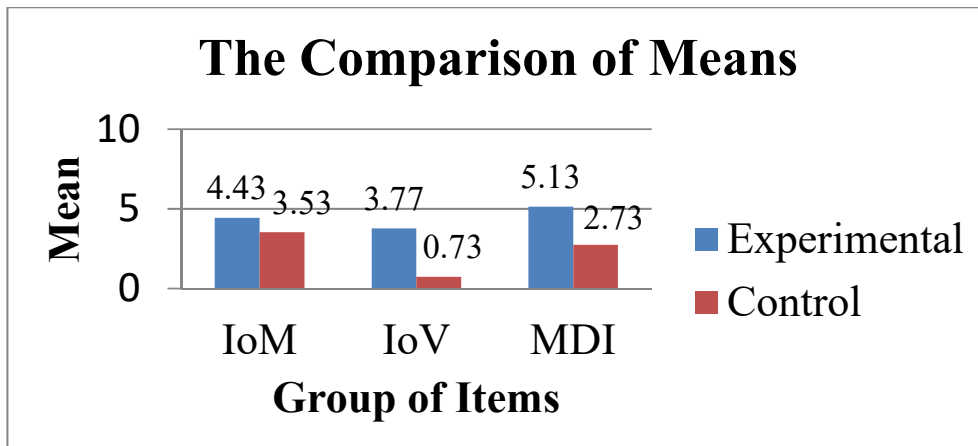
IoM = Items of Memorization

IoV = Items of Visualization

MDI = More Difficult Items

The means of the experimental and control groups were presented in the Table. When the researcher examined the mean of both groups, the means of the experimental group were higher than those of the control group in all groups of items. The overall finding indicated that there was a statistically significant difference between the experimental and control groups at (*p*<.001). It showed that there was a statistically significant difference between experimental and control groups for all groups of Items (*t*=10.701, *df*= 58, *p*<.001).

Figure 1: The Comparison of Means in term of Groups



Note: IoM = Items of Memorization
IoV = Items of Visualization
MDT = More Difficult Items

According to Figure 1, it was found that in the items of memorization, the mean obtained from the experimental group was higher than that of the control group and also in the items of visualization and Items of more difficult items. So, it was found that the students in the experimental group more actively participated in learning than the students in the control group.

Based on the result of independent samples *t*-test, it was found that there was a significant difference in the students' participations between the experimental and control groups in learning.

Conclusion and Suggestion

This paper presents the effectiveness of students' participation by using computer-generated graphics in learning basic contour lessons. These lessons consists of (14) subtopics. This study uses an experimental research design and the sample of (60) students were divided into two groups: control and experimental. Each group had (30) students. As the instrument, a set of computer-generated graphics and (14) question items were developed. It lasted for four teaching periods. After testing both groups separately, the researcher gives feed back to them on what they made incorrect solutions and misinterpretation of the information by showing 3D (three dimension) images sequentially, and by using questioning techniques.

This study showed that there was statistically significant difference between the experimental and control group for all groups of Items ($t=10.701$, $df= 58$, $p<.001$). When comparing the means of the control and experimental groups, the mean of each group of

items in the experimental group are higher than those of the control group. Therefore, it seems to be reasonable to conclude that the students in the control group may not be interested and cannot participate actively in learning. They should be motivated with computer-generated graphics to be interested and to participate actively in learning. In both mean of the items of visualization and more difficult items, the students in the control group are also lower than the experimental group because of losing visualization ability to predict and discriminate the different kinds of contour lines. So, they should be given the opportunities in which by looking at the computer-generated graphics, they share ideas each other, and predict and discriminate the problems actively.

The basic characteristic of the world for which the school must be preparing its students is change. It is clear that education is faced with an unprecedented challenge. The nature of the world of work is going to be radically transformed, as typified by such statements as, most of the jobs that the students will hold do not now exist; or that most individuals will change careers three or five times during their working lives; or that the proportion of low-skill manual jobs will go down and the jobs requiring high skills will increase rapidly. These changes must be taken into account if education is not to be totally irrelevant to the needs of individuals and societies. Today a large proportion of what a child learning come from a wider environment. This suggests two consequences for education. First, the role of the school needs to be assessed to determine how it can take advantage of the learning that goes on outside the school. A second set of question has to do with the influence of education on the environments. It is the impact of technology on the process of education. It is focus attention on the potentiality to provide new condition of learning for students and to affect the efficiency of instruction that can be achieved mass education. With the new technology, it can have both quality and quantity. By technology, it means primarily the systematic application of the results of research and validated experience to educational problem.

In most school situations, classes are not homogeneous or small enough, or teachers able enough, to adjust adequately to individual differences. Every learner is handicapped in some way. Technology can eliminate the perpetual frustrations which must be a major obstacle to real educational achievement.


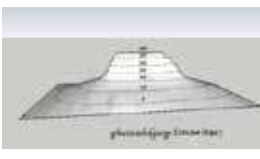
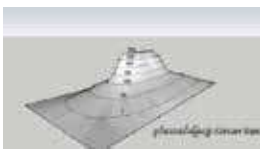








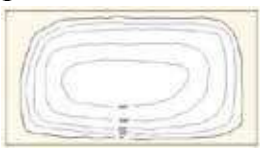
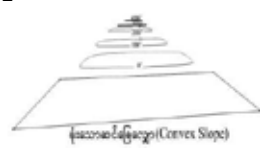




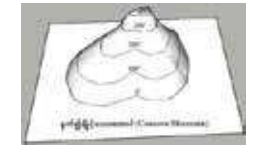



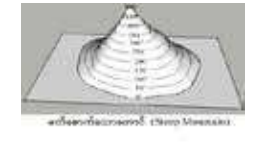
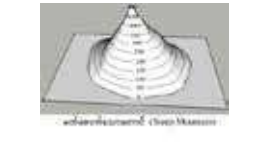
The role of the teacher will certainly be greatly modified. Some teachers will be engaged primarily in the preparation of the instructional program and system. Such work will require a vast increase of understanding of both the learning process and the subjects to be taught. Intelligence and imagination will be demanded as never before. It will be possible, if teachers

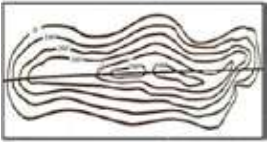



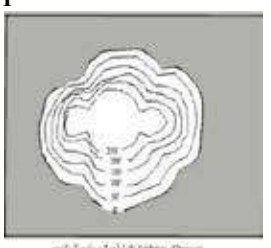
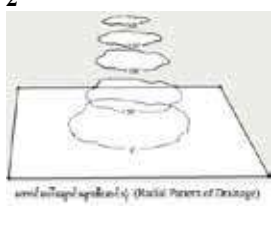
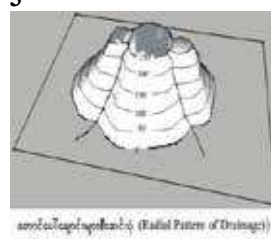
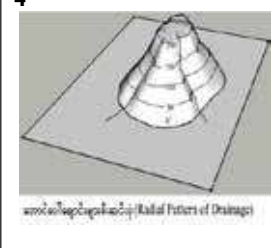
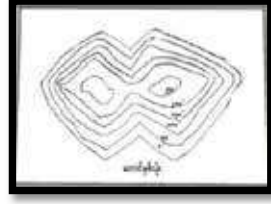

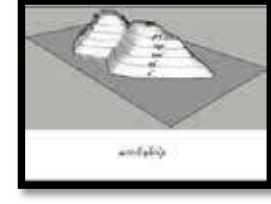

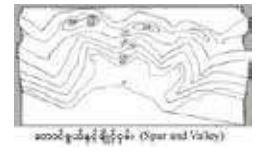
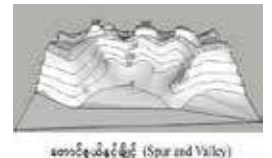
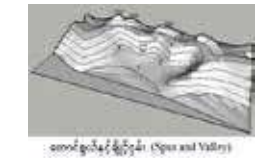
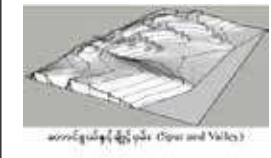
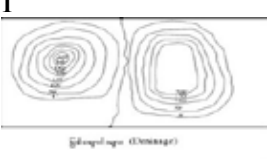

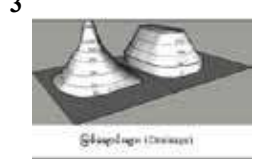
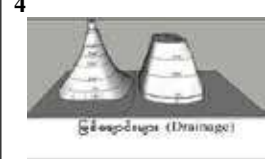



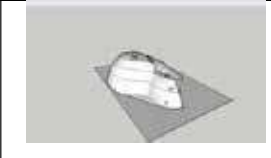
are wise in the way in which they apply the technology, to ensure that human value will be preserved.

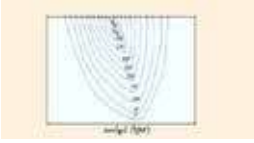
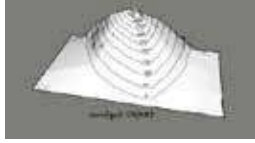

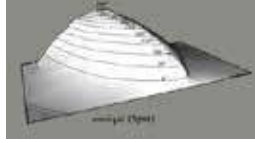


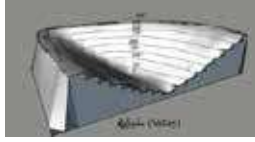
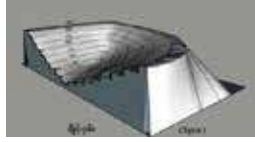
A final benefit of a large scale introduction of technology into teaching is that it will provide a basis for raising the role of the teacher to professional levels and for differentiating among teachers of different abilities. Therefore, it is of tremendous importance to increase the level of professional competence of a teacher who directs a learning system and participate in the creation of effective learning materials. The effect of well applied technology will be to improve instruction and alter the function of teachers in their relations to pupil and to each other.

At the middle school level, "Contour lessons" are prescribed as a practical lesson in line with the Secondary level. So, all students should understand the fundamentals in contour lessons so as to study the new concepts at the secondary level. Geography teachers should be aware of the various kinds of contour types with the use of computer-generated graphics in teaching. Therefore, they must be knowledgeable and skillful in contour lessons to provide them correctly and effectively and to manage the problems of the contour lessons. It is impossible that without using teaching aids, this lesson cannot be taught effectively. That is why the best teaching aids and methods should be developed for both teachers and students to learn in a short time. This paper provides the way in which the teacher teaches them how to interpret and solve the problems of contour lessons by using computer-generated graphics effectively.

In fact, by using computer-generated graphics in teaching contour lessons, the students get the opportunities to think, discuss, share ideas, work together, and interpret the problems of given contour. Therefore, students maintain both academic principles or skills and social skills. In conclusion, if the teacher understands the central concepts, tools of inquiry and can create learning experiences that make these aspects of subject matter meaningful for students; the teacher understands and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills; and the teacher uses effective media communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom, teaching will be effective for the students and they will participate actively in learning

Apendix (A)			
Concave Slope (cGufaomqifajcavQm)			
1	 ဖုဆာဝဲလ်မာ့ဂျာ (Concave Slope)	 ဖုဆာဝဲလ်မာ့ဂျာ (Concave Slope)	 ဖုဆာဝဲလ်မာ့ဂျာ (Concave Slope)
Gentle Slope (nDnmaomqifajcavQm)			
1	2	3	4
 ပျံ့လှောင်မာ့ဂျာ	 ပျံ့လှောင်မာ့ဂျာ (Gentle Slope)	 ပျံ့လှောင်မာ့ဂျာ (Gentle Slope)	 ပျံ့လှောင်မာ့ဂျာ (Gentle Slope)
Steep and Concave Slope (rwfapmufaomqifajcavQmESifhcGufaomqifajcavQm)			
1	2	3	4
 မာ့ဂျာ နှင့် ဝဲလ်မာ့ဂျာ	 မာ့ဂျာ နှင့် ဝဲလ်မာ့ဂျာ (Steep and Concave Slope)	 မာ့ဂျာ နှင့် ဝဲလ်မာ့ဂျာ	 Steep and Concave Slope
Plateau (ukef;jyifrifh)			
1	2	3	4
 ပျံ့လှောင်မာ့ဂျာ	 ပျံ့လှောင်မာ့ဂျာ (Convex Slope)	 ပျံ့လှောင်မာ့ဂျာ (Convex Slope)	 ပျံ့လှောင်မာ့ဂျာ (Convex Slope)
Concave Mountain (cGuficsdKifhaomawmif)			
1	2	3	4
 မာ့ဂျာ နှင့် ဝဲလ်မာ့ဂျာ (Concave Mountain)	 မာ့ဂျာ နှင့် ဝဲလ်မာ့ဂျာ (Concave Mountain)	 မာ့ဂျာ နှင့် ဝဲလ်မာ့ဂျာ (Concave Mountain)	 မာ့ဂျာ နှင့် ဝဲလ်မာ့ဂျာ (Concave Mountain)
Steep Mountain (rwfapmufaomawmif)			
1	2	3	4
 မာ့ဂျာ နှင့် ဝဲလ်မာ့ဂျာ (Steep Mountain)	 မာ့ဂျာ နှင့် ဝဲလ်မာ့ဂျာ (Steep Mountain)	 မာ့ဂျာ နှင့် ဝဲလ်မာ့ဂျာ (Steep Mountain)	 မာ့ဂျာ နှင့် ဝဲလ်မာ့ဂျာ (Steep Mountain)

Range (awmifwef;)			
1 	2  ဆောင်းဝှမ်း (Range)	3  ဆောင်းဝှမ်း (Range)	4  ဆောင်းဝှမ်း (Range)
Radial pattern of Drainage (a&qif;)			
1  ဆိုင်ဝှမ်းပုံဆွဲချက် (Radial Pattern of Drainage)	2  ဆိုင်ဝှမ်းပုံဆွဲချက် (Radial Pattern of Drainage)	3  ဆိုင်ဝှမ်းပုံဆွဲချက် (Radial Pattern of Drainage)	4  ဆိုင်ဝှမ်းပုံဆွဲချက် (Radial Pattern of Drainage)
Col or Pass (awmifMum;)			
1  ဆိုင်ခိုက် (Col or Pass)	2  ဆိုင်ခိုက် (Col or Pass)	3  ဆိုင်ခိုက် (Col or Pass)	4  ဆိုင်ခိုက် (Col or Pass)
Drainage Basin and Spur (csdKifh0Srf;ESifhawmifpG,f)			
1  ဆိုင်ခွက်နှင့် ချောင်း (Spur and Valley)	2  ဆိုင်ခွက်နှင့် ချောင်း (Spur and Valley)	3  ဆိုင်ခွက်နှင့် ချောင်း (Spur and Valley)	4  ဆိုင်ခွက်နှင့် ချောင်း (Spur and Valley)
Drainage (a&qif;)			
1  ခွက်ဆွဲချက် (Drainage)	2  ခွက်ဆွဲချက် (Drainage)	3  ခွက်ဆွဲချက် (Drainage)	4  ခွက်ဆွဲချက် (Drainage)
Cliff (urf;yg;apmuf)			
 ရေတံတိုင်း (Cliff)	 ရေတံတိုင်း (Cliff)	 ရေတံတိုင်း (Cliff)	 ရေတံတိုင်း (Cliff)

Spur (awmifpG,f)			
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Posters

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Cross-Border Work-Based Education and Employability

Cross-Border Work-Based Education and Employability

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Abstract: Work-Based Education concept has been applied in Panyapiwat Institute of Management (PIM) since its establishment. Students enrolled in PIM will undergo internship and class room learning consecutively and continuously from the first year until graduation. The overall internship period for the student of the Faculty of Engineering and Technology (ET) is 1.5 years consists of 3-6-3-6 months over the 4 academic years. The employment rate after graduation is about 98-99% as a result of ready-to-work qualification. Recently, PIM collaborates with the City of Kita Kyushu in sending the ET students for internship in the small and medium enterprises (SME) there. The first batch students are immediately recruited as employees soon after finishing of the internships. The second batch students will begin their internships from the middle of October 2019. The paper will discuss about key success factors and best practices of the program for the application to other Faculty or Institutions.

Keywords: Work-Based Education, Internships, ready-to-work

Introduction

There are 84 National or government supported university, institutes and/or colleges in Thailand. The private university, colleges, or institutes are about 34. Out of these nearly 130 units, 34 have a Faculty of Engineering for both undergraduate and graduate program. Panyapiwat Institute of Management or PIM, a corporate university under CP All PLC., is one of the private higher education institutions with 10 Faculty and 2 international colleges. PIM was first established in order to provide higher continuing education for the Diploma students from Panyapiwat Technology College (PTC) also owned by CP All PLC. So, there were initially only Faculty of Business Administration and Faculty of Management Science with about 500 students and 50 staffs. The concept of work-based study has been experimented successfully in PTC and has since

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refined and continuously improved with the application of the DJT Model and quality management system in PIM. As a networking university, PIM collaborates and connects with several hundred domestic and international organizations to prepare the sites for internships of students and future workplaces for our graduated. Since 2016, PIM collaborated with the Industry Innovation Promotion Office (IIPO), Department of Industrial Economics, City of Kitakyushu for the development of system integrator (SI) working with small and medium enterprises in the city. The first batch of PIM students consisted of the 4th-year 4 male and 1 female students from the Department of Automotive Manufacturing engineering (AME). After the two months intern period from January to March 2019, they were all recruited by the companies responsible for their intern with the second batch to begin the internship in October 2019. The program will be continued for at least 3 to 5 years from now. The paper will take a closer look at the key success factors and best practices for the application elsewhere.

Historical Background

Panyapiwat Institute of Management or PIM is founded with the funding from Sueksapiwat Company Limited, a subsidiary of CP All PLC. CP All PLC is a distribution arm of Charoen Pokaphand (CP) Group, a global conglomerate based in Thailand with operation and investment in agribusiness, distribution, and telecommunication. On March 9, 2007, PIM was granted the permission and license for the establishment of Private University (License N0.4/2550) by the Ministry of Education through the Office of Higher Education Commission and has since been operating as a higher education institution, offering fully accredited bachelor's and master's degree programs since June 1, 2007 and a doctoral degree program since October 1, 2012. [1] The university is located at Nonthaburi, a province north of Bangkok with the area of about 1.8 hectare. PIM has been expanded year by year from two Faculties in 2007 to 9 Faculty and one International College, from 500 to over 16,000 students and from 50 to more than 1,000 staffs in 2019. There are twelve administrative units of which the six major units to provide supports and services to students. These are the Office of Educational Promotion, the Office of Student Affair, the Office of Information Technology, the Office of Arts and Cultural Promotion, the Office of Student Development, and the Office of Organizational Communication. There are an administrative building, a multi-purpose building, and a 16-floor CP All Academy building for lecture rooms, laboratories, faculty staff offices, meeting rooms, library, and canteen. The P in PIM came from

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Panyapiwat which means prosperity of intellect, characterized by academic and moral excellence. The philosophy of PIM is “Education is the Matrix of Intellect” focusing on Practicality, Innovation and Morality. The motto of PIM is “Create Professionals by Professional.

The vision of PIM is that it is aspired “To be Thailand’s leading institution of higher education in retail, management, and technology that focus on learning through experience and creating innovation. To realize this vision, there are 5 items in the mission, namely,

1. To provide quality work-based learning programs and produce graduates with requisite knowledge, skills, and competency sought by employers.
2. To produce high quality research in various fields of study and develop new bodies of knowledge and creative innovations for the betterment of the Institute, Society, and the Country.
3. To provide academic services to businesses, communities, society, and the country.
4. To protect, preserve, and promote the arts and culture of Thailand and foster cross-cultural understanding and exchange.
5. To enhance organizational capacity to increase efficiency and effectiveness and strengthen competitiveness to ensure sustainable growth and workplace happiness.

“Work-Based Learning” or WBL at PIM is a system that supports and inspires students’ growth in all aspects through a combination of classroom and workplace training together with opportunities to cultivate a wide range of skills including social competencies, life skills, and higher-order thinking skills. These combinations of grown-up skills exhibited the strong identity of PIM’s graduates.

DJT Model with Work-Based Learning

Work-Based Learning at PIM based on the DJT model of education uniquely created and refined over the year through quality management system of PDCA or Plan-Do-Check-Action. Each letter in the DJT came from the name of a country that exhibit uniqueness of working and living style. It came from Deutsche-Japan-Thailand Business Model. Though PIM based its education system mainly on German or Deutsche’s Work-Based Learning, the system has been modified by combining the strength of Japan and Thailand together. PIM believes that this combination could create appropriated body of knowledge and thus, qualified and well-trained graduates for the country.

D for Deutsche or German which is a country that excels in fostering human resources through

Work-Based Learning, continuously pursuing innovation, best practitioner of productivity improvement and perfectionism.

J for Japan which is one of most industrious nation excels in marketability, cultivation and application of information, and continuous development of technology.

T for Thailand which is a country with creativity, flexibility, and relaxation culture. [2]

Quality Assurance System

No matter what kinds of model applied in the work processes, quality assurance system is a crucial factor to continuously deliver the best outputs and outcomes. Establishing and implementing an effective system for quality assurance has been a priority for PIM in order to:-

1. Assure the public confidence in the academic standards and quality of academic program offered by the Institute;
2. Ensure that the Institute's academic standards and quality of graduates are recognized by society;
3. Assure standards and quality in every aspect of the core missions of the Institute including research, provision of academic services to society and promotion of the arts and cultural heritage.

To enhance the Institute's educational service quality, PIM Internal Quality Assurance Regulation B.E. 2556 has been developed based on the quality assurance framework established by the National Education Act of B.E. 2542 (1999) and Amendments (Second National Education Act B.E. 2545 (2002) and the Ministerial Regulation on System, Criteria and Methods for Internal Quality Assurance in Higher Education B.E. 2546 (2003) and promulgated and adopted by all Institute's academic and administrative units.

The Internal Quality Assurance System and Mechanisms specified that:-

1. The Internal Quality Assurance Board shall be appointed by the Institute to oversee institutional quality assurance.
2. The Institute's internal quality system shall be established in a structured and continuous manner in line with the spirit and educational standards of Thailand.
3. Components and indicators for internal quality assurance shall be developed based on the Manual for Internal Quality Assurance in Higher Education.
4. The Institute shall set up its own quality assurance agency to be responsible for internal quality assurance.

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5. Each academic and administrative unit shall appoint a responsible person for internal quality assurance tasked with coordination and preparation of annual reports to be submitted for review by the Institute to measure the progress achieved against the internal quality assurance components and indicators established. The results of internal quality assurance assessment are to be communicated to the Institute's executives in each academic and administrative unit to carry out further and continuous improvement.

The Faculty of Engineering and Technology or ET is the third faculty established at PIM. In 2009, the faculty offered only one degree program in information technology (IT) and was known as the Faculty of Science and Technology. With the launch of two new degree programs in computer engineering (CPE) and industrial engineering (IE) in 2011, the faculty's name was changed to its current name. In 2014, the faculty launched two new degree programs in automotive manufacturing engineering (AME) and master degree program in information technology (MSIT). In the year 2016, the Department of Robotic and Automation Engineering has been established with the master degree program in engineering technology (MSET) established in 2018. As of present, there are 5 bachelor degree and 2 master degree programs. There are 35 teaching staffs and 14 administrative staffs with about 450 undergraduate degree students and 4 master degree students. Similar to all other faculty, the curriculum of the ET consists of both coursework and internship or professional development program over the 4-year period. The ratio between coursework and internship is 60% to 40% or 30 months of coursework and 18 months of internship. Total credits for every engineering undergraduate program are about 140 with roughly 20 to 25 credits for internship. In contrast, the engineering curriculum for other university in Thailand consists mainly of coursework with only 1 month for internship in ordinary program or 3 to 6 months of internship for cooperative program. Study and/or internship periods in PIM are organized as 2 block courses per one semester. So, PIM student will have a very short vacation period, about a week between each block. This is a major reason why PIM could provide longer time for internship for the student. Table 1 shows study and internship plan for the ET student.

Table 1 Study and Internship Plan for ET student

Y1	S:12 W	S:12W	B	S:12W	P:13W	B
Y2	S:12W	S:12W	B	P:12W	P:12W	B
Y3	S:12W	S:12W	B	S:12W	P:12W	
Y4	P:12W	P:12W				

Y= Year, S=Study, P=Practices W=Week, B=Break

Internship plan for ET students

As can be seen from Table 1, there is internships or professional development period in every academic year for ET student of PIM. The detail plan is:-

Year 1 – 3-month of training at a 7-Eleven store to develop service mind, creative thinking skill, and to learn the store technology system.

Year 2- 6-month internship in student’s chosen area of study.

Year 3- 3-month internship to strengthen work competencies and problem solving skills.

Year 4- 6-month of professional placement. [3]

CP All PLC owned an exclusive license to operate 7-Eleven convenience stores in Thailand so that PIM could organize the stores as initial training sites for all of its students. For the second to fourth year students, network of alliances company has been built over the past 8 years for professional training sites. So, from the second year, the IT and CPE students could practice as programmer, system engineer, or documentation specialist in a software house. The IE students could be trained in logistic, environment, or production management in manufacturing plants. The AME students could be trained in assembly lines, parts production, or service centers.

To create professional awareness and real life working situation, Project-Based Learning is applied over the whole internship period. Students would work individually or with group of partners to submit proposals of work place or process improvement in the first year. For the second year, the project will be more focus on corresponded area of their study and report on

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implementation is required. The third and fourth year projects will be more comprehensive as a senior graduation project.

Evaluation of Professional Development

Generally speaking for PIM , the apprentices and/or internship program for student begins with the discussions among two internal parties, namely, the student's academic advisor, representative from the Office of the Center for Career Development for Student (CCDS), and one external party, namely, representative of an alliance company. The agenda consists of apprentices and/or internship period, detail of project work, expected outcomes, scoring scheme and responsible evaluators from each party, student's per diem (if any), accommodation and transportation (if applicable). The score is distributed among the project accomplishment, written report, and oral presentation. The outcomes of the final presentation at the end of the fourth year are one of the most important factors for graduation.

gPBL and AMIECC Endowed Course: Stepping Stones for overseas internships

Foreign language literacy is one of the key factors for overseas internships. The students of ET could select Japanese or Chinese as an elective course during their undergraduate study. However, one 3-credit course will not be enough for language proficiency needed in the internships and in the future career overseas. So, special Japanese intensive courses were organized for those who intend to participate in Kita Kyushu City program. All participants were trained for more than 200 hours of Japanese conversation, reading and writing. The focus is in the conversation skill which is really important for daily life in and out of work.

ET students also have a chance to participate in another two important programs, namely, Global Problem-Based Learning (gPBL) and AEM-METI Economic and Industrial Cooperation Committee (AMEICC) Endowed Course.

gPBL is the joint student training program organized by Shibaura Institute of Technology - SIT, Japan, and PIM since 2017. Then King Mongkut University of Technology Thonburi – KMUTT decided to join in 2018. This is the 8-days program consists of lectures, factory tour, group discussions and presentation. Thai and Japanese students from three institutions were

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divided into several of mixed group. They were taught about Japanese Manufacturing Management Technology focusing on Kaizen principle, and Industrial Engineering principles of Work Study and Quality Control. Then the students would have a chance to observe the production lines in Thai factory. They were assigned to find Kaizen points and try to propose the suitable solutions. Final presentations would then be responded and comment by factory executives and PIM instructors. The ultimate objective of gPBL is to foster international engineer and long lasting network of participants from different cultures. From the outcomes of the final evaluation questionnaire over the past three consecutive years, nearly 95% of participants feel satisfy with the program arrangement and remarked strongly about the positive impact on the ability to strengthen English communication during the program period.

In the year 2018-2019, PIM participated in the AMEICC Endowed Course Program. This course is designed to provide basic concept and understanding of Artificial Intelligence and Machine Learning for undergraduate students to prepare for internships in companies in Thailand or Japan. After completed the training, the students will gain knowledge of Artificial Intelligence and Machine Learning and can apply the Machine Learning techniques to solve the business problems. The objectives of the program are to make Artificial Intelligence and Machine Learning accessible for the target students; to gain the knowledge of the main ideas and concepts of Artificial Intelligence and Machine Learning; to be able to apply Machine Learning techniques to business and industrial area; and to become familiar with the culture of Japanese companies. The lecturers are the instructor from ET, PIM and experts from domestic and Japanese cooperation companies. The target group of this training is 70 to 100 undergraduate (2nd – 3rd Year) students from the faculty of Engineering and Technology (Information Technology, Automotive Manufacturing Engineering and Computer Engineering) and other interested students from other faculties (i.e., Innovation Agricultural Management, etc.) at Panyapiwat Institute of Management. The project is composed of 2 phases, namely, the Training Phase and Internship Phase. Training period for each class is 6 days, held 1 day per weeks at Panyapiwat Institute of Management. Faculty of Engineering and Technology together with Japanese cooperation companies, i.e., Future Standard, Mitsubishi Electric Factory (Thailand) and NEC Corporation (Thailand), developed internship qualifications for target students. Students who met the qualifications would have opportunity to join the internship with cooperation companies. The internship started in April 2019. [4]

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Results and Discussions: Key Success Factors and Best Practices

It is found that all the first batch of 5 students that went to Kita Kyushu fully attended the Japanese intensive course and AMEICC Endowed Course program. Four out of five participated in the gPBL program. For the second batch students, there are seven students with 5 from AME and 2 from CPE that successfully passed the interview by the participated companies for internships in Kita Kyushu. All of them attended the Japanese intensive course and also did the self-study via YouTube or On-line learning. All the 7 students attended the AMEICC Endowed Course Program and 5 of them participated in the gPBL program.

The graduate number from ET of PIM between academic year 2012 to 2015 are 18 (IT), 28 (IT), 102 (16 CPE, 26 IE, 19 IT, 41 AME), and 126 (27 CPE, 21 IE, 28 IT, 50 AME) respectively, totally 274 persons. Immediately after graduation, 201 persons has been employed by companies outside CP group or established their own business, 69 persons by CP and Subsidiaries Company and 4 persons decided to continue studying for Master Degree. Under the global economic recession situation, these nearly 100% employment of the graduated reflected the strong demand for the “ready-to-work” graduates with minimum training required in the workplace.

In addition to the internal quality assurance of the institution, the Office of Higher Education annually performs third party surveillance audit as internal quality assessment. Then every 4-year period, the Office of Academic Standard would perform third party surveillance audit as external quality assessment. The internal quality assessment has been done since 2010. ET of PIM achieved the score of 4.42 in 2010, 4.65 in 2011, 4.70 in 2012, 4.76 in 2013, 4.66 in 2014, 4.70 in 2015, 4.73 in 2016, and 4.72 in 2017, out of the full score of 5. The score over 4.5 signified the very good level. As for the round 3 external quality assessment done in the year 2014, ET achieved the highest score of 4.67 out of 5 among all Faculty of PIM. The average score for overall institution was 4.52. So, ET achieved very good level for both internal and external quality assessment by third party. [5]

Since the industrial revolution, the speed of change in the private sector, the user side of human resources, is getting higher and higher year by year. Meanwhile, the change in educational institution is still very slow. For example, it would generally takes about 3 to 4 years to change the curriculum in the higher educational institution. Needless to say that, the curriculum including the teaching and learning practices rarely reflected the up-to-date situation in the private sector. So,

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for the countries like Germany and Japan, internship program and closely collaboration between university and private sector are the keys to success in fostering qualified and well-trained human resources to satisfy the immediate needs of the user side. As a corporate university under one of a global conglomerate, PIM realized the significant roles of Work-Based learning to provide best quality graduate corresponded to the needs of the private sector.

The DJT Model with Work-Based Learning has been created, modified, and continuously refined over the past 12 years through internal and external quality assurance system and PDCA cycle. The main ingredient of the model is the internship program or professional development plan. Detail planning between internal units and alliance companies, couple with annual internship period resulted in “ready-to-work” graduates with 100% employment right after graduation.

The initial 12-weeks training at 7-Eleven convenient stores provides significant character development and basic understanding of working culture to the student. Lack of communication skill in almost all technical students could be alleviated by conversation practices with roughly 400 customers during each working shift. Instill of discipline during internship is done through the system of three-shift work. Student has to be on time for their shift. Dedication to the duty is also instilled as the student has to stay in the store after the shift ended to transfer the duty to the person who works in the next shift. Student is also trained to be honest as they must be responsible for all the money received from the customers. Last but not least, working in the store with hourly wages would help student to fully realize the hardship of earning their own money. After this 12-week internship, the thinking and manner of the students are remarkably changed from just a learner to a real practitioner and from childhood to adulthood. Consecutive training for another 15 months over the next three years will further hone their skill to be “ready-to-work” engineers when they are graduated. [6]

So, the key success factors and/ or best practices in PIM for fostering the young engineer for both domestic and overseas career are work-based learning, communication skill training, intensive language course, extra-curricular program e.g., gPBL and AMEICC Endowed Course. The students and graduated who has been trained in the subjects and participated in these programs would possess a strong potential to progress in any career path that interested to them either domestic or the overseas ones.

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Conclusions

PIM, one of a few Thai corporate universities, employs the work-based learning system or WBL which required engineering students to spend at least 40% of the time in the internship program. The internship period has been designed to spread out over the 4-year period. The targets of the training period range from soft skill or work-life awareness to actual career training. Almost 100% of graduated from PIM were employed immediately. Compared with the report from the education reform committee, only one out of 3 or 4 graduated from other university could get a job soon after graduation. Also, the general survey from private sector indicated that the graduates from other university would require the training period of at least 6 months to 1 year before they would be ready to perform their duty. So, WBL could foster better graduated than the traditional education system employ in other domestic university.

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Posters

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**Digital Education for Higher Education Institutions (HEIs) in
Myanmar**

Digital Education for Higher Education Institutes (HEIs) in Myanmar

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Abstract: Education is a fundamental building block of economic growth. The current education system of Myanmar is based on traditional teaching and learning methods. As we make the move towards Education 4.0, the entire education value chain must be aligned to this transition. Digital education can use collaborative tools that perpetuate knowledge sharing not only between teacher and student but also among students. Digital Education is a critical enabler of skills development and growth, not only for the traditional economy but for the upcoming digital economy.

Digital Transformation in Higher Education Institutions (HEIs) will lead to benefit the following : (i) Prepare for Education 4.0 (ii) Improve the educational administration (iii) Improve Industries-University Relationship (iv) Improve teaching and learning with digitized teaching materials such as learning management systems and courseware.

Digital Education will result in a lower-cost, higher-quality, and more productive education system. The country-wide uptake of digital learning, however, needs appropriate planning along each step of the value chain and extensive public-private partnerships. Only then can the country have equality in education and develop a stronger, better-equipped workforce to meet the needs of the future workplace. In this paper, we will focus the plans to transform digitalization system for HEIs in Myanmar. There are several steps to transform the digital education as follows: First, we will classify existing digital Education roadmaps and identify the state of development. Then, we will assess the existing national education policies and review their ability to promote and support innovation in the education sector. After that we will start surveying and reviewing the existing ICT infrastructure and budget using in HEIs. Next step will be implementing strategies considering budget, infrastructure, application, processes and ICT Human Resource Development Plan. Finally, we will implement digital transformation plan which will help to strengthen the production and growth of an institution.

Keywords: Digital Education, Education 4.0, Learning Management System (LMS) and Courseware

1. Introduction

One of the important elements of this global age is Digitalization. When concepts such as the internet, large data, coding, and smart factories are evaluated by digitalization and objects called the fourth industrial revolution (Industry 4.0), the developing countries seem to fall behind in these issues (Parlak, 2017). Industry 4.0 for the new skills and learning processes of the digitizing world emphasizes education that is appropriate to the needs of the economic order and the market that are shaped through digital technologies . In this direction, the problem of studying how the digital transformation in education can be realized in the context of management and education programs constitutes the problem. Today, education must be collaborative and interactive. Teachers are making drastic changes to the way they approach instruction, with technology in the classroom playing a major role. Digital transformation positively impacts student learning by opening a world of endless possibilities and collaboration (Bates, 2015) .

HEIs in Myanmar have been exploiting emerging technologies to improve performance and adapt to the increasingly technology-driven society. Digital Transformation is also an important issue for HEIs and presents some challenges that must be considered when defining digital policies and strategies. Current situation in Myanmar, HEIs are facing enormous pressure due to the uncompleted ICT infrastructure, the limitation on ICT budget, the new demands of the labor market and the growing expectations of students to innovate their experiences learning, teaching, research, and management. To address some of these pressures, HEIs will try to use digital transformation strategies as a way to improve ‘how’ the existing system do its existing work, to digitize the current operations while creating new digital models in parallel, to create wholly new digital models or to fully digitize the current .

This paper follows an explorative research approach by combining theories and findings from the existing systems of the different countries and applying them in HEISs. Most of the work presented is based on research approach.

The remainder of the paper is structured as follows: Section 2 presents the purpose of research, Section 3 discusses the existing research work of digital transformation in Higher Education Institutions (HEIs) from different countries. Section 4 show what are found in current education system and Section 5 presents Research Methodology and step by step implementation

procedure. Section 6 implements the digital transformation roadmap for HEIs, Myanmar. Section 7 summarizes the findings and discusses future work.

2. The purpose of Research

The purpose of this study is to determine how to implement the digital transformation in HEIs, Myanmar. In this context, the answers to the following questions were searched:

- W 1. What is the existing digital education roadmaps in HEIs?
- W 2. What are the existing national education policies and what are their ability to promote and support innovation in the education sector?
- W 3. What is the existing ICT infrastructure and budget using in HEIs.?
- H 4. How can be implemented strategies considering budget, infrastructure, application, processes and ICT Human Resource Development Plan for HEIs, Myanmar?
- H 5. How digital transformation plan will be implemented which will help to strengthen the production and growth of an institution?

3. Literature Review

Digital transformation of higher education institutions was the process of their technological and organizational changes, primarily caused by the development of digital technologies (Menendez et al., 2016). Some authors even highlighted that true digital transformation of these institutions could be achieved only if the significance of the digital culture was comprehended and accepted by all of their organizational units, and adopted as a part of their own culture. Our research work will try to digitize the current operations while creating new digital models in parallel, to create wholly new digital models or to fully digitize the current .

The principal aim of the digital transformation process in higher education was to redefine educational services and redevelop higher institutions' operational processes. There were three possible approaches to accomplishing this goal. The first involved service-first transformation, focused on changing and redefining services prior to making key improvements and changes to operations, i.e. activities within processes. The second was the operation-first transformation, aimed at identifying new and amending present digital processes, activities and

operations, as the basis for redefining higher education services. The third, service-operation combination, involves integrated transformation through systematic interrelation of both previous approaches (Sandkuhl & Lehmann, 2017).

It is recognized that the Norwegian Ministry of Education and Research needed to provide an overall strategic direction for the higher education sector in relation to digitalization, “by providing clear expectations and vision, by clarifying the distribution of tasks and responsibilities and by initiating joint measures and initiatives”. It intended to operationalize its overall strategy through a series of sub-strategies, focusing on research, education, infrastructure, administrative solutions, and information security, prepared by a working group comprising representatives of the higher education sector. The Norwegian government wanted to ensure that the higher education sector was equipped to face the digital challenges of the future and enhanced coordination among different ICT service providers and the HEIs, to generate efficiencies across the system and to ensure that the necessary, compatible and interoperable digital infrastructures to support the administrative, academic and research functions of HEIs are in place. Shared services were developed, when deemed more cost-effective and/or when they will result in better services. The new service agency (established in 2018) were responsible for tactical and operational administration of ICT and digitalization at the sectoral level and for implementing and following up the strategies and policies established by the Ministry of Education and Research, and sectoral initiatives. The Digital Strategy for Schools provides a rationale and a Government action plan for integrating ICT into teaching, learning and assessment practices in schools over the next five years. This Strategy builds on previous strategies in the area of ICT integration and it takes cognizance of current education reforms that are already underway within the education system at primary and post- primary level. This Strategy focuses on the schools’ sector and the proposed actions are designed to embed ICT more deeply across the system to enhance the overall quality of education. Care has been taken, in developing the Strategy, to ensure that the actions align with and complement strategies and initiatives to support digital learning in the further education and higher education sectors (Norwegian Government, 2017).

The development of these skills needs to start early in the education continuum which focuses on integrating ICT into teaching, learning and assessment practices in schools. The Census Report data, along with a number of submissions, highlighted that many people currently

view ICT as something peripheral and not core to teaching, learning and assessment. However, the Strategy stated that meaningful ICT integration was the responsibility of all and was the key component of a high-quality 21st century education system. It was important that all stakeholders were proactive and took a leadership role in identifying how ICT can enhance their education system, particularly in the areas of teaching, learning and assessment. The Department's vision for ICT integration in Irish schools was to: Realize the potential of digital technologies to enhance teaching, learning and assessment so that Ireland's young people become engaged thinkers, active learners, knowledge constructors and global citizens to participate fully in society and the economy (DES, 2015).

The proposed research will take the service-first transformation which will be focused on changing and redefining services prior to making key improvements and changes to operations. The digital transformation in HEIs of Myanmar will lead the young people to become the thinkers, active learners and global citizens to participate in high-quality 21st century education system.

4. Findings

This study is a document analysis research to determine how digital transformation in HEIs takes place. Based on the research questions in section 2 , the research was done as follows: review the existing digital education roadmaps, the existing national education policies and what are their ability to promote and support innovation in the education sector, the existing ICT infrastructure and budget using in HEIs.

Digital Economy Development Committee (DEDC), Myanmar was established in June 2017 and its mission Statement for Digital Economy is “Enabling Digital Transformation, Digital Government, Digital Trade and Innovation to develop a Digital Economy across all sectors for inclusive and sustainable socioeconomic development.” According to the digital connectivity short-term action plan, HEIs have fiber network and internet connection. According to the digital skills and inclusion short-term action plans, digital transformation in Technical universities and computer universities in Myanmar will implement. According to the digital skills and inclusion long-term action plans, Universities around Myanmar have to develop massive open online course and online learning modules. According to these digital economy long and short-terms plans, most of the HEIs have their own website and students and staffs

information can share via those websites (Digital Economy Development Committee, 2019) . A little HEIs currently use learning management system(LMS) and course management system(CMS). But most of HEIs need to implement the LMS and CMS.

5. Research Methodology

To answer the research questions, survey questions to HEIs and semi-structured interviews were conducted with higher officers. Digital transformation will be started with a strategy. A clearly defined strategy that leverages opportunities presented by the new technology while meeting the objectives of our stakeholders. The main parts to develop a digital transformation for HEIs in Myanmar can be summarized as follows:

1. Business architecture

To establish the administrative services for all student lifecycle phases in business processes (Student Management System which will include the application to issuing exit certificates).

2. Application architecture

To develop the various information systems which will support for administrating and supporting services. Learning management system, Course Management System, Library System and training software modules.

3. Data architecture

Students data, Teaching Staffs data, lab equipments data (for student lifecycle management, for administrative purposes, for facility planning, etc.).

4. Technology architecture

Central IT-infrastructure for the university with additional decentralize environments for some faculties and research units. Security system for campus and University Information.

Based on the above architectures, the digital transformation in HEIs Myanmar will be implemented step by step as follows:

1. ICT Infrastructure and Budget for HEIs

- Reviewing the current ICT infrastructure and Budget for each HEI
- Develop/Upgrade the ICT infrastructures
- Provide pupil-computers
- Provide pupils with internet access in all learning areas in HEI
- Provide teacher-computers
- Provide school-wide network & link all HEIs through Wide Area Network around Myanmar, enabling high speed delivery of multimedia services.

2. Educational Software and resources for HEIs

- Develop the Learning Management System, Course Management System and Library Management System to meet curriculum needs
- Facilitate use of relevant Internet resources for teaching & learning
- Provide a system of convenient procurement to help HEIs obtain software easily & on time for teaching and learning
- Provide the Student Management System for students' admission, registration for programs and courses, examination, program development, and their quality assurance. In addition, supporting services as study planning, facility management, teacher allocation, scheduling, etc.

3. ICT Training for Teaching Staff in HEIs

- Train every teacher in purposeful use of ICT for teaching
- Equip trainee teachers with core skills in teaching with ICT
- Involve institutions of higher learning & industry partners in schools

4. Document evidence of learning outcomes for HEIs

- Keep track of data or student work that shows improvement as a result of the use of technology.

- Test scores, classroom observations, and student portfolios can all be used to document success and growth.
- Reflect on how new technology may or may not have impacted these results.

The ultimate goal of digital transformation is to provide a single platform as the foundation of the network and communications infrastructure.

6. Digital Transformation Roadmap for HEIs Myanmar

A digital transformation roadmap is an essential element for an institution with a long-standing aim to establish itself and with a renewed aspiration to improve the overall students learning experience and outcomes through technology-enabled learner-centered methods. The main challenge is how to engage in a holistic digital transformation of the institutional teaching and learning system to have a single distributed technology-enhanced learning framework that allows its learners to learn anywhere, anytime within a student-centered, and outcomes-based framework. Digital Transformation Roadmap for HEIs Myanmar is illustrated in the concept model as shown in Figure 1:

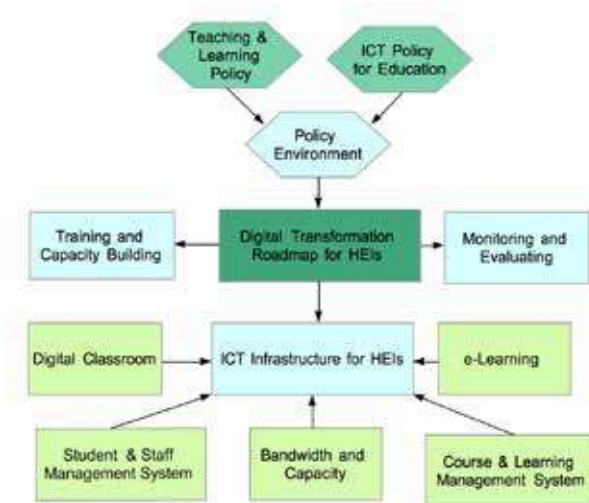


Figure 1: Digital Transformation Roadmap for HEIs Myanmar

The policy environment: The policy environment layout the foundation for digital transformation strategy taking into consideration the teaching and learning policy and the technology-enabled learning plans within a well-defined framework for ICT policy.

The ICT Infrastructure: For such digital transformation to occur, there is a need for a robust and resilient technical infrastructure to ensure a high level of secured and uninterrupted service. Digital classroom, eLearning , Student and Staff Management System, and course and Learning management system will be considered to be explored while there is a need to integrate learning environments with the main student information systems. At the same time, to improve on-campus user experience, WIFI coverage expansion and increased internet bandwidth are already being implemented.

Training and Capacity-Building: To change the digital transformation, a good implementation plan that includes training and capacity-building of staff is also needed. A sustained training and capacity-building plan is an important element for implementing the successful digital transformation. Such training and capacity building should needs to be sustained with a clear plan of expected outcomes and measurable impacts over time. Training on teaching and learning with technology, digital classroom management, learning management , use of eLearning platforms, communication and collaboration tools.

Monitoring and Evaluation: If there is no monitoring and evaluation process, it cannot be said that plans are not fully implemented. It is important to set measurable targets and to come up with a monitoring and evaluation plan to ensure the transformational process remains on track and as expected.

7. Conclusions

It can be said that youths of today are in such a transformation due to the birth of the digital world, and the information can be accessed by mobile technology anytime and anywhere. In this context, in line with the needs of the individuals, the learning environments and the teaching programs which HEIs should be transformed together with the digitalization. The digital transformation is not only based on the use of technology but also is a vision and a strategy. The paper investigated the digital transformation for HEIs Myanmar and investigated general transformations paths and their implementation. We argue that enterprise architectures form an excellent support for planning the transformation. The limitation of this work is that the digital transformation paths should be described in much more detail and investigated in many more case. A description in much more detail should include the objectives and steps of transformation activities and an analysis of all enterprise architecture. As for the future research,

we will consider to upgrade HEIs with the Emerging Technologies such as AI, Big Data and Blockchain.

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