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a Case of two Technological Universities*

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Mr. Myint Mo Tun

Abstract

Myanmar has been a democratic country since 2011 under President Thein Sein's government. During this period, reforms in social, economic and political sectors have been initiated by the civilian government. Education reform, which includes the development of human capital, is one of the fundamental reforms in Myanmar democratization process. During the fifty years of military rule, education in Myanmar fell far behind international standards, reducing the capacity of the students and teachers to contribute to the development of the human capital.

The purpose of this study is to investigate factors relating to student learning processes in the Information Departments of the Technological University of Mandalay and the Technological University of Kyaukse. The study will analyze key factors of these programs, including the curriculum, pedagogy and infrastructure of these two technological universities. Data was collected by documentary research and in-depth interviews. The documentary research data was taken from journals, scholarly articles and online databases in Thammasat University Library. The researcher conducted interviews with students and teachers in both technological universities. The results show that the curriculum, pedagogy and infrastructure of technological universities are in need of improvement and development in order to produce qualified graduates who can apply their skills and knowledge in the economic sectors as well as to contribute the development of human capital in Myanmar. The outcomes of this research can be helpful not only for the improvement of technological universities, but also for the whole education system of Myanmar.

Keywords: *curriculum, pedagogy, infrastructure, teaching aids, learning resources, skills, knowledge, qualified, graduates, students, teachers, and Information Technology*

1. Introduction

After fifty year of under military regimes, Myanmar has now begun a democratic transition since 2011, in which. President Thein Sein's government has introduced various political, economic, educational and social reforms. Among them the on-going education reform is most important and essential for the country because the quality of education in has gradually declined since 1962. After the military coup in 1962; students started protesting to express their dissatisfaction with the military regime but were eventually suppressed in 1988. After that, the military regime separated all of the students and scattered all over the country according to the University Law 1973.

Most of the universities are administered by the Ministry of Education, but some are administered by various other ministries. According to Ministry of Education (2005), there are 163 universities in Myanmar. Among the universities, the number of the technological university is higher than other types of university that provide specialty program such as medicine, arts, science and foreign languages. There are 56 institutions under the Ministry of Science and Technology in 2015 including the technological universities, the computer universities and the government technical institutions. Of these, thirty three are technological universities.

According to the University Law 1973, universities are to outside of urban areas and must be scattered all over the country. Some of the technological universities remained located in the cities while the others were place in rural areas; however, most of universities were situated outside of towns. The expenditure for the education declined after the military coup and so did the quality of the pedagogy and the curriculum. The capacity of the students, the teaching staff, the teaching methodology and the resources were limited in the universities since (Hays, 2013). Although the number of universities has increased, the national expenditure for the education sector was only 1.3 percent of national budget. This is a small percentage of a small account, given that Myanmar has been in the list of the Least Development Countries since 1980 after the military coup and it was described as the poorest country in the world (WorldBank, 2015). The budget allocation and the technical support for the technological universities and the institutions are limited, however quality of

technology and the teaching skill of the teachers in the technical universities still should be upgraded especially in Yangon and Mandalay (Was, 2012).

When universities cannot produce skilled-labors into market, it will certainly affect the economic development of the country. The Government cannot provide for the adequate infrastructure for the students such as libraries, workshops, computer rooms and laboratories in the universities. Furthermore, the government cannot support capacity building for university teachers to strengthen the quality of education in the country. There is no interactive learning system in all universities similar to students' critical, practical and creative skills after they graduate. The quality of higher education has failed due to the government policies and inactivity. Getting the opportunities having brighter future for the young generation is slimmer and slimmer. So the reform of the education system of Myanmar should be in prior to any reform. (Ennew,2014).

2. Problem Statements

There are three main problems facing Information Technology (IT) students in Myanmar. Firstly, Myanmar students have poor skills and knowledge of IT. The major cause of it is that the technological universities have inadequate computer rooms, libraries and the workshops and very poor to internet service as well. Students cannot practice their skills in these computer rooms and workshops and cannot afford to buy their own desktop computers or laptop. Students learn computer programming without a chance to run a programs on an actual computer. On top of that, students are weak in critical and logical thinking because there is no interactive teaching methodology in the classrooms.

Secondly, the government provides insufficient support and opportunities for students. Due to insufficient government budgets provide the students with adequate teaching staff and sufficient technical support in the universities. The government also has neglected to provide opportunities for the students to work in the government sector and private sectors as well as to provide students scholarship opportunity to further their studies (Martin Hayden, 2013). These limitations make it almost impossible for graduates to find good jobs fields related to their studies.

Lastly, higher education sector normally produces 180,000 graduates every year, with the number of the graduates is increasing each year. However most of them were poorly trained and had no relevant skills. Approximately 73% of the graduate students are working in different workplaces rather than working in the relevant field. Unemployment rate is rising gradually each year. Employers are facing the labor shortage and having to hire staff without skills and capacity. There is no link between the private sectors and the universities as well as the ministry of labor (Guerrero, 2014).

For the above three cases, this study will provide remedies for the failing technological education sector within universities in Myanmar. This research should be seen as a foundation to reform not only IT department but also other departments and universities as well as the whole education system in Myanmar.

2.1 Research Objectives

The purpose of the research is going to explore what may have caused the low skills in the graduates from the Technological Universities in Myanmar. The objectives of the research are:

- 1) To identify the key factors of the education system in Technological Universities.
- 2) To review pedagogy, curriculum and infrastructures which are implemented in the IT programs of technological universities.
- 3) To report the policy recommendations for technological universities in Myanmar.

2.2 Research Questions

- 1) What are the main problems that affect the quality of education system in IT department of Technological Universities?
- 2) What factors are affecting the learning process of IT students in Myanmar?
- 3) What should the government provide to improve the skills and knowledge of IT students in Technological University in Myanmar?

This research addresses how developing capacity among students is essential because the students are from the younger generation who will have to undertake the responsibilities of

the nation in the future. They are also in integral sector Myanmar's human capital resource base. However, the greatest challenge is that the students cannot find a job easily after they are graduated because they were lack of skills and inadequate qualifications to find employment. The government and stakeholders should provide infrastructure such as libraries, good internet service and computer rooms and changes in pedagogy of technological universities in order to better develop student capacities.

3. Literature Review

3.1 Higher Education System in Myanmar

The higher education system is managed by the Ministry of Education whose responsibilities for management redefined into Upper and Lower Myanmar administrative areas. The institutions and universities are separated by University Education Law 1973. The Administration and management of the universities is under related ministries. There are 163 universities and institutions in Myanmar. Sixty four universities are managed by the Ministry of Education and the rest are supervised by eleven ministries such as the Ministry of Health, the Ministry of Science and Technology and the Ministry of Culture. These institutions and universities conduct variety subjects such as engineering, maritime studies, defense, forestry, education, foreign languages, veterinary science, computer science and culture and fine arts. Programs range from undergraduate to doctorate programs under the related ministries.

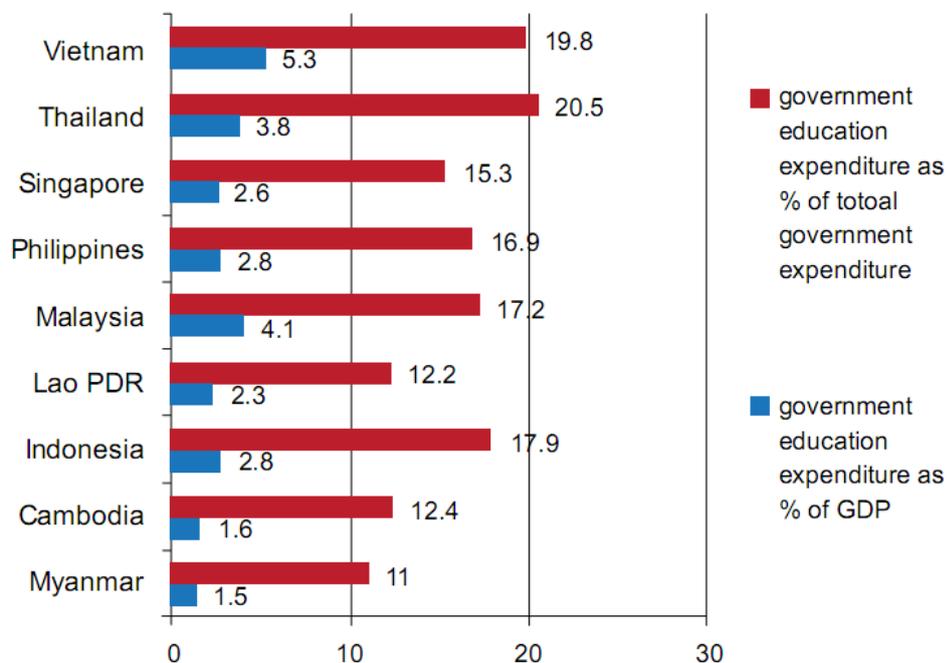
All curricula, syllabi and textbooks to be used in all the institutions and universities are designed and selected by the respective ministries. To prevent the uprising of students, the government scattered the student forces by building all the universities in rural areas outside different cities (Guerrero, 2014).

The allocation of budget to the education is not sufficient for higher education in Myanmar. According to budget allocation, the Ministry of Education was allocated up to 47%: the Ministry of Defense 2.7%, the Ministry of Science and Technology and the Ministry of Health 9% and 2.6% respectively in year 2014. Most of the budget allocated was spent to construct new universities in rural areas and other regions. The number of the institutions and

universities are improved from 32 to 163 from 1988 to 2012. The significant problem is that there is inadequacy of skillful teachers, staffs and teaching resources in all universities and institutions. The spending on the construction of new universities was 32.8% of the whole budget of the national education (Guerrero, 2014).

Compared to other ASEAN countries, the expenditure on Myanmar Education Sector is the lowest in the region. Budget spending on the education was 0.7% of the GDP and it was 3.5% of the total government expenditures in year 2008. The 20% of government expenditure of Thailand and Vietnam on Education is the highest while 11% on education sector in Myanmar is the lowest in year 2012. In order to improve the education system of Myanmar, the government needs to invest more money in education system so that the people can learn better and higher education and become skillful as in human resource for the economic system in the country in the future. According to UNICE Myanmar’s report, budget allocation should be equal in various ministries of Myanmar Education System (UNICEF, 2013).

Figure1. Education Spending in Myanmar –ASEAN Regional Comparison



Source: Myanmar MoFR (2012) and ESCAP Statistical Yearbook 2011

Note: Myanmar figures are for 2012-2012, all other figures are for 2008, except Cambodia which is for 2007.

6. Methodology

This research was designed in quantitative method, which was conducted through an approach in documentary research method and the data collected by in-depth interview in two technological universities in Mandalay and Kyaukse, Myanmar. The students who participated in these interviews were selected from each academic year including first year to final year in technological universities. The heads of the department of Information Technology and teachers from both universities were also interviewed. Finally, the researcher conducted interview with Dean of Curriculum Development Committee of IT in Thanlyin Technological Universities at Yangon, Myanmar.

7. Findings and Results

7.1 Mandalay Technological University

The Government Technical Institute was established in 1995 and was upgraded to a full university in January of 2007 as Mandalay Technological University. Mandalay Technological University received ISO certificate 9001:2008, on 7 April, 2016 and offers Bachelors of Engineering in Civil Engineering, Electronic Engineering, Electrical Power Engineering, Mechanical Engineering, Information Technology, Mechatronic Engineering, Chemical Engineering, Mining Engineering and Architecture.

7.2 Kyaukse Technological University

Kyaukse Technological University had been as a Government Technical Institute since 1988. Later it was upgrade it to Technological University in 2007 and received its ISO certificate 9001:2008 in 2016..It is located in Kyaukse District, a remote area of Mandalay Region and 40.45km from Mandalay city. Kyaukse Technological University offers bachelor degrees in Civil Engineering, Electrical Power Engineering, Electronic Engineering, Mechanical Engineering, Information Technology, Mechatronic Engineering, Metallurgy Engineering, Bio Technology and Nuclear Engineering.

7.3Analysing Curriculum

The curriculum and courses are centralized under management of Academic Board in Information Technology Department. This body had decided that all technological universities should offer the same courses, with the same syllabi and use the same textbooks everywhere. The curriculum of IT department is based on three fundamental courses. It takes six years to complete a Bachelor Degree of Engineering. There are Programming, Networking and Computer Architecture. Every academic year is based on these three courses. Students are learned upgrading subjects in their academic year from first year to final year that are based on these three curriculums.

The Academic Board is responsible for designing curriculum and courses for each academic year of classes. There are sixteen technological universities that offer IT subjects in Myanmar. Therefore an academic board was organized of thirty lecturers from these technological universities. Two lecturers from each university have responsible for respective subject to review and update in review meeting. The academic reviewers meet at least twice before the academic year is started and after the mid- year to review with the assessment of students and requirements of business sector every year. The Academic Board adapts the curricula based on the Programming, Networking and Computer Architecture in every academic year of IT department and develops the curricula and courses in order to fulfill the requirements of IT industries and business sector. Finally, the courses and syllabus are adapted after discussion with stakeholders and agreement of academic board.

Although the academic curriculums are published by Information Technology Academic Board, the academic board does not have policy and regulation system to view the implementation of the curriculum. There has not been any particular review system and standardized test to analyze how to conduct the curriculum in the technological universities as well as higher education institutions. Lack of a particular curriculum review system interferes not only pedagogical system in learning environment. This is one of the failures of the education system in technological universities.

7.4 Analyzing Pedagogy

Pedagogy is one of the elements that needs to be studied to explore the education system of technological universities. The teaching methodology is the connection between students and teachers in academic places that create learning processes. The learning system is currently based on the rote learning system in the technological universities. The teaching system is not interactive between students and teacher because a student approach learning system is not applied in the classroom. Teachers have to teach according to curriculum which is designated by the Academic Board.

Teachers cannot apply student approach teaching in the classroom because of the scarcity of teaching aids. Also, there are no student discussions, presentations and group works in the academic year. Students are required to submit the term paper for the projects at the end of the year after the final examination. Therefore students emphasize to pass the examination using rote learning method.

Developing the capacities of teaching staff is crucial to pedagogy as well. To develop the capacity of teaching staff, teacher trainings must be provided in the education system. These teacher trainings are rare in the technological university, there is no particular teacher training program available in the internal department of education system. The students are also lack of group work discussion and trying to find about the lessons in other sources such as academic journal, articles and online information. As a result, there is no interactive learning system in technological universities.

7.5 Analyzing Infrastructure

Infrastructure is a basic requirement of an education system. Infrastructure helps students to practice their knowledge and skills which they have learned in the class. The facilities, computer rooms, libraries and workshops are limited in the IT universities. Students have only one day per week for practicing with computer. There are insufficient numbers of computers for students to practice programming lessons and networking subjects. The ratio of number of computers and students is 1:5- preventing students practicing IT lessons in the computer lab rooms. Moreover, there are no teaching aids such as projector and internet are

not provided in the class rooms. There is one projector per faculty, and some faculties have to borrow from other faculties. Buildings require renovations in order to be safe. And furthermore there is no dormitory for students on campus. Students have to stay private dormitories.

Library resources are very scarce. Student cannot get the books what they would like to borrow. Books in libraries are very limited and accessing them is very difficult as some books are kept in locked showcases and not available for circulation. There are not enough text books for all students and they cannot borrow the books they need.

Because library resources are so restricted, universities cannot provide support for conducting research by students and teachers. Conducting research is one of necessary component of universities in order to produce the qualified graduates. Therefore such an infrastructure is a basic requirement for supporting the learning environment of universities and institutions. Scarce resources for infrastructures disturb the accumulation of practical skills and capacity development of students.

8. Conclusions

The main objectives of this study have been to explore the weakness of curriculum, pedagogy and infrastructure of the IT departments in technological universities, Mandalay and Kyaukse. Many things that are needed to develop curriculum, pedagogy and infrastructures of the technological university, however ISO certificates were awarded in both universities nonetheless. Still, there are many challenges in curriculum, pedagogy and infrastructure in the technological universities.

The Information Technology Academic Board is required to have particular curriculum review system in the technological universities. The review board should have greater authority to reviewing curricula that should meet the standard of an international education system. The curriculum should be based on demand of IT markets and emphasize on overseas education system. It also should emphasize the capacity of teaching staff and learning aids when updating curricula.

The pedagogy of education system in technological universities needs to implement interactive learning systems between students and teachers. Students need to have group discussions, presentations for lessons, extra readings and assignments in order to develop student capacity as well as fulfill the demand of IT markets and the human capital of the nation. Developing new curricula and conducting teacher trainings are necessary to improve the capacity of teaching staff. The capacity of teachers is important to produce qualified graduates.

Finally, providing adequate infrastructure such as teaching material and learning aids help to improve the practical skills of students. Libraries need to have sufficient books for students for their extra reading and research. Library also should be user friendly for every student. Furthermore, engagement with business sectors and international universities with technological universities are necessary for capacity development of students and academic staff in technological universities.

Some suggestions have been provided for improving the knowledge and skills of the students in technological universities, some suggestions were provided. The curriculum should be standardized for academic board for every academic year in Information Departments. The teaching staff should apply interactive teaching that is based on the student –centered approach to improve student’s participations in the class. The universities need to provide adequate infrastructures such as library, learning aids and teaching materials for every student. Therefore curriculum, pedagogy and infrastructures are essential to reform in technological universities and other universities in order to produce qualified students that are support to human resource development of Myanmar.

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- Training Manager (1st January, 2011 to 31st March,2012), Myanmar Egress Capacity Development Center
- Invigilator – Part time job (May, 2011 to April, 2014), British Council, Myanmar.



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Thammasat Institute of Area Studies (TIARA)

Thammasat Institute of Area Studies as one of the most active institute in Thammasat University has a long history of academic excellence. Starting out as an institute named Thai APEC Study Centre, the institute focus basically on conducting research and to advise the government in the matter of policy making. One of such example is research and training collaborations with the Office of National Broadcasting and Telecommunication Commission (NBTC). Later on, the institute grown to accommodate another Institute namely Australian Study Centre (ASC) and renamed to Thammasat Institute for Study of International Cooperation (TISIC). With this new structure, the Institute expands its research base to include that of Australia and New Zealand. Master of Arts in Asia Pacific Studies (MAPS) coming up as a result of years of experience in conducting research and academic exchanges through the above mention institutes. The Master program was officially launched in 2015 with its first batch already producing some of the best works for the institute.

In line with the University wide restructuring, in 2015, the Institute underwent a major revamp to include 3 more area studies institutes namely Indian Studies Centre, Russian and CIS Studies Centre and ASEAN Studies Centre. With the consolidation of these 3 new area study centres, the institute therefore renames Thammasat Institute of Area Study (TIARA). The institute will continue what it do best, to continue producing high quality academic excellence and hope with the new restructuring, the institute will be able to achieve more in the coming years.

For more information on TIARA, you can visit our website at <http://www.apecthai.org/>

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Master of Arts in Asia-Pacific Studies Program (MAPS)

Master of Arts in Asia Pacific Studies (MAPS) program is an up and coming area study based master degree in Thailand. Focusing on Asia Pacific Studies, MAPS is a multidisciplinary graduate program that helps interested students to have an in depth understanding of this dynamic region. With a strong foundation of academic curriculum and high quality facilitators across all academic backgrounds, Master of Arts in Asia Pacific Studies will guide students through the disciplines of Politics, Economics, International Law and International relations to give a well-rounded understanding of Asia Pacific. These advanced courses offer a more in depth examination of questions and problems specific to the Asia Pacific region. Our graduates go on to pursue careers in academia, business organisations, government and wide array of organisations, both local and international.

Our students will also have the chance to familiarise with the academic settings in a sense that through their thesis course, student will be exposed to all kinds of academic scrutiny such as thesis defend and comprehensive thesis writing course. Nearing to the end of the program, student will be given a chance to showcase their hard labour at an International Conference held specially to facilitate the students learning curve. In the end, the works that they put their heart and soul into will become the pride of the program as each one of them, despite their different backgrounds; can come up with a thorough and deep analysis of particular research program concentrated on Asia Pacific and finally contribute to the literature on Asia Pacific Studies.

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