Students' E-readiness for E-learning at Two Major Technological Universities in Myanmar

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Abstract – **Based on the current situation of the higher education system in Myanmar, the Information and Communication Technology (ICT) for education attracts attention and many universities are trying to introduce e-learning. In order to implement e-learning to universities, not only infrastructure of universities but also readiness of students should be considered. In this study, the survey was conducted to identify and analyze students' attitudes towards e-learning readiness. And the results reveal the differences of students' IT background on e-learning readiness between Yangon and Mandalay Technological Universities; YTU and MTU. Moreover, this study provides instructional designers and educational stakeholders how to design e-learning strategies for not only YTU and MTU but also Myanmar technological universities around the country.**
Keywords - Higher Education, ICT, E-learning, Students, Major, Urban, Rural

I. INTRODUCTION

The Republic of the Union of Myanmar currently has one of the least developed ICT sectors in ASEAN and digital literacy is extremely low in Myanmar. Engagement with Information and Communication Technology (ICT) is still a completely new experience for the majority of Myanmar people[1]. Additionally, Myanmar is facing a situation of 'digital divide' between urban and rural areas due to a development gap in the country, where many areas have no electricity or Internet access[2]. Besides, the quality of education in the remote areas is described as not living up to quality standards in big cities[3]. At present, ICT plays an important role in Myanmar's Higher Education Reform[4] because the level of university education substantially dropped, as especially technological universities and computer universities[5]. But there are still many barriers for higher education in Myanmar. Specifically both YTU and MTU have still faced difficulties in offering enough techniques and skills[6].

As a good solution, e-learning can offer new possibilities to higher education institutions in the universities from developing countries like Myanmar. Moreover it can compensate the weakness of traditional education methods and enables higher-education instructors to transfer their knowledge for a relatively largely number of students without limitation of space, time or facilities [7][8][9]. However, in order to implement e-learning effectively in any university, it is also important to ascertain the existing barriers to and possible motivators of e-learning adoption. Though there are various reasons for failures in implementing e-learning, users' technical skills and perception are critical to e-learning implementation. Unless e-learning readiness is established and corrective measures taken, all the efforts and investments in implementing e-learning are likely to be fruitless.

Moreover, the successful adoption of an e-learning system can be measured using various factors such as learners' satisfaction, confirmation, post-adoption expectations, individual and social influence, perceived behavioral control, and motivation. Student characteristics are regarded as a critical success factor in e-learning in developing countries .Their attitudes and beliefs towards e-learning, as well as their satisfaction with technology and past e-learning experiences are regarded as success determinants of future e-learning initiatives. [10][11] Amongst many barriers to e-learning, cultural and technical barriers are identified as predominant[12]. Moreover, the participating students in the urban and regional areas were positively disposed towards e-learning and believed in its benefits. Besides, students who were not skilled in ICT became anxious about the use of computers, had lower expectations from educational technology, and they did not believe in the benefits of e-learning[13]. Students who had better access to technology and the Internet generated stronger positive e-learning attitudes[10]. On the other hand, students in urban institutions used ICT to support their learning significantly more than students in semi-urban and rural institutions[14]. And students' prior experience in using information technology is important in e-learning though not mandatory[15]. Keeping these concerns in view, the study examine the attitudes of students from top technological universities in Myanmar.

Yangon Technology University (YTU) and Mandalay Technological University (MTU) are the best and most popular technological universities in lower Myanmar and upper Myanmar. Those two universities are known as Centre of Excellence (COE) among technological universities around the country. YTU is located in downtown of Yangon which is known as commercial capital and has the best educational facilities [16]. MTU is located in uptown of Mandalay which is popular as cultural capital. Unlike Yangon, in Mandalay, there are many social problems concerned with urbanization and the most important negative impact is cultural impact[17]. The 78 % of YTU students are from 'urban area' but 58% of MTU students come from remote and boarder areas as well as rural areas. On related to this, the divide of urban and rural affected the students 'attitude on their study place because the students from YTU satisfied in accessing high-quality education and got more learning opportunities more than the students from MTU[18]. Consequently, the YTU and MTU students may

have different IT experiences and educational backgrounds. Likewise all the challenges faced by YTU and MTU students are important to be understand before implementation e-learning education in their technological universities. So, in this paper, the attitudes of students from two technological universities and factors influencing on their attitudes are examined, depending on their backgrounds and environments.

This paper presents an overview of student attitudes towards e-learning and mainly, it outlines the factors influencing those attitudes and it discusses the findings of the study. The current paper has been organized as follows: research methodology which was used in e-learning readiness assessment of two technological universities, then result and discussion on research findings and finally, conclusion and recommendation towards two technological universities for e-learning education.

II. METHODOLOGY

Student levels of access to technologies represent an initial factor that would shape their attitudes towards e-learning, and their willingness to use it; the availability of reliable ICTs and the convenience of accessing these technologies reflect student attitudes toward e-learning [10]. To successfully adopt e-learning, it is necessary to examine users' background, technical capacity and perception towards technology. In previous study, the e-learning readiness of teachers and students from YTU and MTU were only analyzed[19] which adopted an assessment instrument based on the questionnaire previously developed by Sary, Chisaki and Usagawa [20]. However, factors influencing on students' studies and inequalities related to students' background were not examined. With this in mind, two students groups (IT-major and other-majors) are classified in this study based on their specialized subjects at YTU or MTU. This study aims to examine whether students' technological backgrounds and their universities' situations are related to their attitudes towards e-learning readiness or not.

TABLE I. CHARACTERSTICS QUESTIONNARIES

Item No.	Questionnaires
C1	I know what e-learning is.
C2	I am ready to integrate e-learning into my teaching.
C3	I have enough IT competency to prepare/access the e-learning materials.
C4	I prefer e-learning lessons.
C5	I use computer at home very often.
C6	I use computer at campus very often.
C7	I am willing to make the time for e-learning.
C8	I am interested to improve my work performance through e-learning.
C9	I can discipline myself to follow e-learning courses.
C10	Overall, I am ready for e-learning.

As active participants, 23 IT-major and 106 other-major students from YTU and 77 IT-major and 442 other-major students from MTU are evolved. Other-major of both technological universities are Architecture, Chemical, Civil, Electronics, Mechanical, Mechatronics, and so on. The respondents' perception of e-learning readiness were captured along four dimensions using a five-point Likert scale. The four dimensions used in this survey are characteristics of students (10 items), e-learning facilities (6 items), e-learning environment (14 items) and e-learning management (10 items). Descriptive statistics (Mean, m and Standard Deviation, sd) were used to summarize each item for four dimensions of questionnaires. Moreover, student T-test was applied to assess the differences between IT-major students and other-major students regards questionnaire items. In the figures, the black mark "*" represent the differences between responses from YTU IT-major students and ones from YTU other-major and the pink marks "*" represents the difference between responses from MTU IT-major and ones from MTU other-major. "*" refers the significance at the level of 1% and "**" corresponds ones to 5%.

TABLE II. FACILITIES QUESTIONNARIES

Item No.	Questionnaires
F1	My Faculty/Department has enough computers for lectures to use.
F2	Computers in my Faculty/Department are fast enough to run the software installed.
F3	My University network is fast enough to access the e-learning materials.
F4	I have my own computer/laptop to use.
F5	My University has good IT infrastructure maintenance.
F6	Overall, the IT infrastucture can support e-learning well.

TABLE III. ENVIRONMENT QUESTIONNARIES

Item No.	Questionnaires
E1	My colleagues know what e-learning is.
E2	My colleagues' IT competency is high enough to conduct e-learning.
E3	We have a shared vision among the colleagues about e-learning.
E4	My University/Faculty/Department has a culture of sharing and team
E5	Overall, the lecturers are ready for e-learning.
E6	The most effective method of learning is face to face.
E7	E-learning is an advanced mode/stage in teaching and learning.
E8	E-learning is an efficient means of disseminating information.
E9	Discussion via the internet make learning more meaningful.
E10	Lecturers are still the best information providers.
E11	When using e-learning technology, the personal touch is important in the learning process.
E12	E-learning is helpful to improve teaching and learning.
E13	E-learning provides the opportunity for learners to discuss and work collaboratively on projects.
E14	It is the right time to promote e-learning in my university.

TABLE IV. MANAGEMENT QUESTIONNARIES

Item No.	Questionnaries
M1	My University/Faculty has a budget for e-learning.
M2	I am willing to buy a computer for e-learning purpose.
M3	I am willing to spend extra money on e-learning.
M4	My university's IT manager/coordinator has sufficient IT competency
M5	My university's IT technician(s) has sufficient IT competency to
M6	My university has enough technician to support e-learning.
M7	I can overcome most of the technical problems I encounter myself.
M8	My university provides enough training opportunities for me to learn about e-learning.
M9	My university provides enough tutorial for me to learn about e-
M10	Overall, the technical support of my university is adequate to support e-learning.

III. RESULT & DISCUSSION

Many research studies identified correlations between positive computer experience and positive attitudes, competence and comfort with computers [21][22]. On the other hand, some reveals that there was no significant difference in the level of attitudes towards ICT and e-learning between the urban and regional groups[10]. Unlike their researches, the findings of this research reveals that the computer skills and e-learning readiness is inverse relationship in some readiness items. Furthermore, the findings from the current study provide direct evidence about of the influences of students' background on e-learning readiness factors. The findings were primarily based on the quantitative data gathered from the respondents using a set of questionnaires at March 2016. The results presented as following:
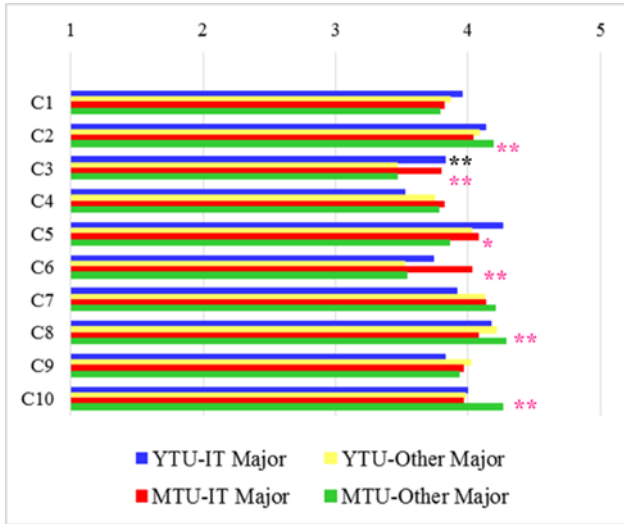
A. Characteristics for E-learning

Fig. 1 Result of E-learning Characteristics

Figure 1 shows the averaged responses on 5-level Likert scale for each item of Characteristics of e-learning.

According the results, most of students who evolved in this survey are positive about e-learning and ICT. Differences between IT and other majors are observed for C3 (IT competency) and both IT-major students have confidences on IT than other-major in both technological universities. Interest results are only MTU IT-major students responded significantly difference for C2 (integrate e-learning into teaching), C3 (IT competency), C5 (prefer e-learning), C6 (use computer on campus), C8 (improve my performance), C10 (overall, ready for e-learning). The reason of those results should be investigated in depth due to large difference of number of students who involved and possibility of unexpected bias.

Also it is worth to note that the lowest response is observed for C4 (prefer e-learning) from YTU IT-major. As of survey time, March 2016, both YTU and MTU did not provide any e-learning course, so that all students have no experience in any e-learning lesson. About ICT environment of IT-major students from YTU and MTU, they have higher scores on C5 (use computer at home) and C6 (use computer on campus) than other-major students. There is not significant difference in YTU except C2 (integrate to e-learning) which

provides differences between YTU IT-major and YTU other-major students at the level of 5%.

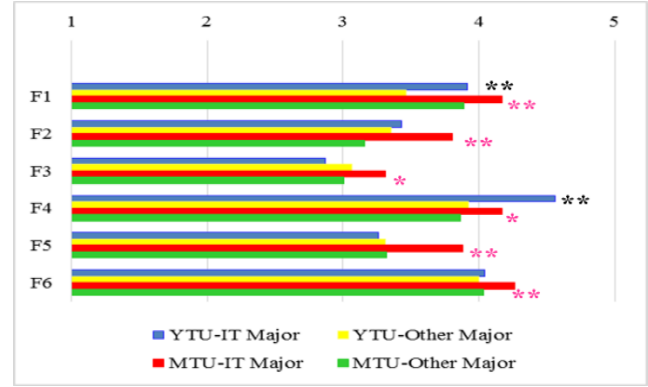### B. Facilities for E-learning

Fig. 2 Result of E-learning Facilities

Figure 2 shows the averaged responses on 5-level Likert scale for each item of e-learning facilities.

Although significant differences are not observed, YTU IT-major students provided least positive replies on F3 (university network) and F5 (IT infrastructure) among four groups. Some YTU-IT students argued that they are not able to access WiFi service at their department while other major students can access at their departments at the time survey conducted. After May 2016, the situation was improved at their new department building. Statistical tests show the significant difference on F1 (number of computers) and F4 (own personal computer/laptop) between IT-major and other-major at both YTU and MTU. As e-readiness point of view, it is reasonable to target IT departments as the first stage, then other department after special consideration to support their students.

Significant differences between IT-major and other-major at MTU are detected in all of items, and largest difference is obtained for F2 (computer quality) while there is no significant difference at YTU. According to the survey on F4 (own computer/laptop), all of YTU-IT students have their own computers, but only 77% of YTU other-major students have personal computers while 83 % of MTU IT students have but only 74% of MTU other-major students have. In the same time, not only IT-major but also other-major students from two universities responded their lowest mean on F3(university network). It confirms that both COE technological universities have network barrier towards e-learning education at time of survey.

C. Environment for E-learning

Figure 3 shows the averaged responses on 5-level Likert scale for each item of environment.

From the readiness point of view towards e-learning, scores of IT-major students in MTU are higher than ones of other-major students in all of environment items. Both student groups from YTU and MTU gave their lowest means on E1 (colleagues' e-learning knowledge), E2 (colleagues' IT competency) and E3 (shared vision for e-learning). It means that students and their colleagues are weak for knowledge sharing but they hope e-learning can provide better education benefits. Significant differences between YTU IT-major and YTU other-major are observed in E3 (shared vision for e-learning) and E13 (opinion for e-leaning benefits on projects) at the level of 5%. However, significant

environment items found in MTU are not the same in ones from YTU. More items with statistically differences between IT-major and other-major students in MTU are observed.
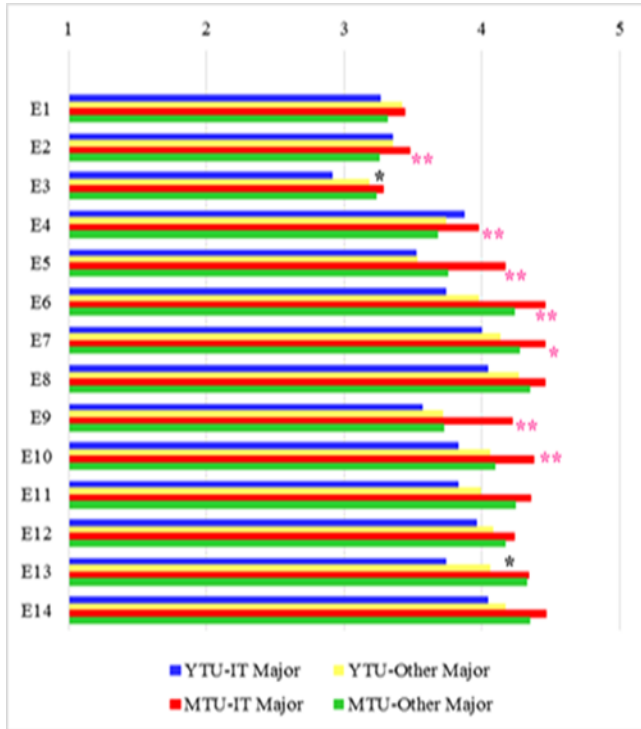

Fig. 3 Result of E-learning Environment
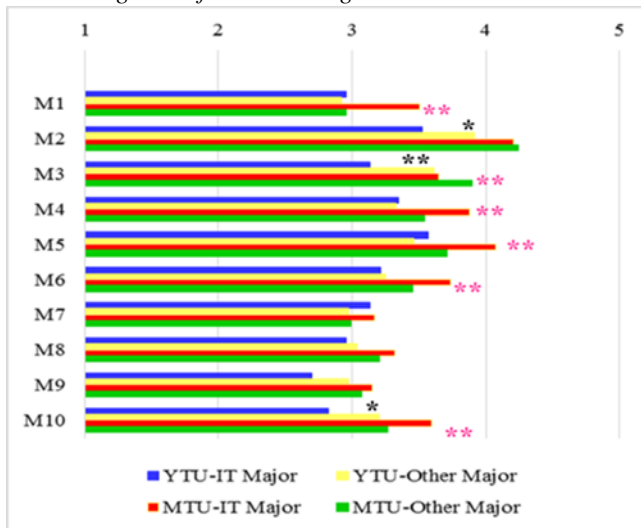
D. Management for E-learning

Fig. 4 Result of E-learning Management

Figure 4 shows the averaged responses on 5-level Likert scale for each item of management.

In comparison with IT students, other-major students from YTU and MTU gave lower score on C5 (use of computer at home), C6 (use of computer on campus), F1 (number of computer) and F2 (computer quality) and it means that they do not get enough facilities provided by universities like IT-student. On related those facts, they want to get better education facilities and so other-major students from both YTU and MTU respond higher scores for M2(willingness to buy computer/laptop) and M3(spend extra money on e-learning). Significant differences between IT and other groups in YTU are observed for M2 (willingness to buy computer) at the level of 5%, M3 (willingness to spend time)

at the level of 1% and M10 (university's technical support) at the level of 5%.

As motivating respond, IT-major students from not only YTU but also MTU gave their lowest mean on M7 (can overcome technical problems). Those finding shows that IT students are facing with technical problems for e-leaning education even though they have confidence to overcome with their IT background. On the other hand, other-major students from both universities gave their lowest mean on M1 (university budge of e-learning). It shows that their universities have budget barrier to start e-learning.

IV. CONCLUSION

From the readiness point of view, scores of IT major students are higher than other-major students for characteristics dimension from YTU (C1, C2, C3, C4, C5, C6 and C10) and MTU (C1, C3, C4, C6 and C9), for facilities dimension from YTU (F1, F2, F4 and F6) and MTU (all items) and environmental dimension from YTU (all item except E1 and E4) and MTU (all items). In management dimension, YTU-IT students gave higher scores four-items only (M1, M4, M5 and M7) while MTU-IT students ones responded higher mean to items (all items except M2 and M3). Consequently, this study presents that the students who have enough IT skills provides strongly positive attitudes than students with less of IT skills in assessment of e-learning readiness.

Statically differences between IT-major and other-students are observed for characteristic dimension in YTU (C3) and MTU (C2, C3, C5, C6, C8 and C10), for facilities dimension in YTU(F1 and F10) and MTU (all items), for environmental dimension in YTU (E3 and E13) and in MTU (E2, E4, E5, E6, E7, E9, E10) and for management dimension in YTU (M2, M3 and M10) and in MTU (M1, M3, M4, M5, M6 and M10). From those findings, not only students' ICT skills based on their specialized majors but also location of universities can affect their attitudes towards e-learning readiness. If compared to other dimensions, most of mean values in management dimension are lower than 4. So, both COE technological universities should be organized for better management towards e-learning education.

According to survey results, all the students gave lowest score on F3 and therefore YTU and MTU have problems of university network to implement e-learning education on campus. As all the IT students from both technological universities gave lowest once on M7, even IT students are facing with technical problems. On related to those results, stakeholders of universities should and ought to become creative and imaginative for their success in embracing e-learning. This study can help instructional designers how to make an effective contents and how to delivery same contents for engineering students from COE technological universities. Based on YTU and MTU condition, technological universities in Myanmar have a chance to provide good e-learning environment in the near future. And it would be helpful if cooperation with universities at which e-learning is already popular is established.

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