

# Comparison of E-learning Readiness in Yangon and Mandalay Technological Universities in Myanmar

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## Abstract

*Nowadays, the Republic of the Union of Myanmar is trying to transform into an information society and to reform its education systems including Information & Communication Technology (ICT) based learning environment in higher education. To cope with e-learning education, most of Myanmar Technological Universities have different types of challenges. For a preliminary assessment of e-learning readiness, a total of 84 teachers and 648 students from Yangon Technological University (YTU) and Mandalay Technological University (MTU) have participated in this research. This paper explores the e-learning readiness of teachers and students from both top technological universities in Upper Myanmar and Lower Myanmar. The overall finding of this study indicates that high percentages of teachers and students from both universities have same positive responds for advanced ICT-based learning environment, e-learning, even though both YTU and MTU are still weak in terms of educational facilities. Moreover, the outcome of this research recommends how to design and implement a same course for both YTU and MTU students who have not experiences in e-learning.*

Keywords: Myanmar, Developing Countries, E-learning, E-learning Readiness, YTU, MTU, Teachers, Students

## 1. Introduction

At present, the traditional classroom-based educations in the world is seeking more effective higher education to create better learning environments for their students. At the same time, e-learning has emerged as an important educational tool because it has unlimited time and place but has shaped educational institutions by providing students with new ways of interacting and learning with each other and giving teachers new means of monitoring students' progress and expanding their learning opportunities. E-learning refers to learning which utilizes different types of facilities may be combined through satellite transmission, mobile devices, audio or video tape, CD, intranet, internet and so on[1]. Moreover, E-learning can be seen as a good change of advanced education from teacher-centered to student-centered and upgrade the nature of instructing and learning[2]. Additionally, the e-learning has growing into low-cost, user friendly, keenly motivating and broadly available education.

As open doors, the use of Information & Communication Technology (ICT) will not only enhance learning environments but also prepare next generation for future lives and careers. Consequently, many developing countries are altering their educational goals by introducing ICT and e-learning. E-learning has appeared at many universities of developing countries to solve educational problems (for example, less of skillful teachers/ professors) and

demands of students (for example, modern learning environment). The academic achievement is the foremost intention of universities and hence instructors are observing better ways for upgrading education and getting effective students outcomes. In the meantime, computer usages in learning make students obtain high performance in their current education and their future workplace[3].

More and more universities are installing e-learning education into their academic systems via medium internet connection[4] because e-learning use is associated with increased students' academic performance, while perception and behavioral intention are associated with actual use of e-learning[5]. In comparison with the developed countries, unique challenges are found in developing countries but e-learning can compensate the weakness of their traditional education methods and enables higher-education instructors to transfer their knowledge for a relatively large number of students without limitation of space, time or facilities[6].

The Republic of the Union of Myanmar is still one of least developing countries up to 2016. Higher education in Myanmar are strengthening their weak parts. Like other countries, Myanmar understands that traditional teaching alone could not adapt to all the requirements of education. Moreover, Myanmar government has estimated to increase the uptake of broadband internet to at least 25% by 2018 and mobile

penetration up to 70% by 2017[7][8]. This is a moral revolution that the progress of internet service might be taken into educational sectors in near future.

However, that Myanmar has many challenges to implement and share e-learning courses efficiently because of limited bandwidth and internet speed, lack of experience in teaching with new technologies, lack of motivations for students, language barrier, lack of tutors with experience in e-learning, lack of qualified e-learning training material, etc. Moreover, most of teachers and students in academic environment assumed wrongly that e-learning is not cost effective even though it can take better educational chances[9]. In this case, we assume that both teachers and students from YTU and MTU will have motivation for e-learning education.

Both Yangon Technological University (YTU) and Mandalay Technological University (MTU) are the best and most popular technological universities around the country and those universities are known as Center of Excellence (COE). However, both of them could not develop and deploy any e-learning courses for their students because of burdens such as budget, e-learning experts, network infrastructure and electricity.

This study aims to examine the e-learning readiness of teachers, students and their technological universities before building e-learning contents for them. This paper has been organized as follows: research methodology which was used in assessment of both technological universities' e-learning readiness, results and discussion for findings at each university, then conclusion and finally introducing to future researches from the current findings.

## 2. E-learning Readiness

E-learning readiness can be defined as an assessment of mental or physical preparedness, technical experience and competency on e-learning before implementing any e-learning course[10]. From its assessment, the e-learning instructional designers can catch key information such as how to design e-learning strategies and how to support teachers for delivering learning experiences systematically. Actually, e-learning is a decent open door for higher educations to meet learning demands but there might be many different obstacles in each institution to adopt its benefits. Furthermore, its implementation should be prepared well because of high time and cost investments. Hence, estimations of e-learning preparation are crucial to reduce the challenges and risks during e-learning implementation.

## 3. Research Methodology

In this study, forty questionnaires divided into four dimensions were shared to gather e-learning

attitudes from both technological universities. The four dimensions are followings;

1) *Characteristics*: The individual characteristics of teachers and students are important for assessing e-learning readiness because students and teachers in developing countries could have different attitudes towards e-learning education[11][12][13]. Normally, teachers who have no computer skill are hindrance to deploy and innovate teaching methods based on e-learning[6][14]. On the other hand, some researches claimed that computer experience is not major role for e-learning positive attitudes[15]. Consequently, the YTU and MTU students' behaviors and attitudes are critical to measure their e-learning readiness. In this research, ten characteristics questionnaires were delivered to students and teachers of both technological universities for assessing their e-learning attitudes.

2) *Facilities*: Usually, the lack of proper internet infrastructure, speed and reliability could prevent e-learning readiness in higher education. Moreover, the universities should cover the minimum hardware requirements and the software requirements to implement successful e-learning education [10]. Consequently, six questionnaires were delivered to students and teachers to evaluate whether both technological universities have enough computers and internet access.

3) *E-learning Environment*: For e-learning innovations, the universities should own sufficient education environment which could implement e-learning environment for teachers and students using e-learning materials. Moreover, a basic technological structure which could provide better learning environment should be established[9]. For assessing the environment status of both technological universities, fourteen questionnaires were shared in this research.

4) *E-learning Management*: Inevitably, e-learning urges the academic teachers to learn and create new imaginative teaching methodologies. The role of university teachers is moving from information suppliers to active knowledge facilitators. Likewise, the role of university students is shifting to knowledge collaborators from information receivers[16]. Therefore, the universities should focus on e-learning preparation stages such as training to teachers and e-learning knowledge sharing to students. In this study, a total of ten questionnaires were delivered to teachers and students for evaluation of universities e-learning management.

Those four dimensions can help to identify current condition of both universities and outlooks of two user groups to start e-learning course. Likert scale that consisted of Strongly Agree (SA=5), Agree (A=4), Neutral (N=3), Disagree (D=2) and Strongly

Disagree(SD=1) were used to measure attitudes of teachers and students. Furthermore, descriptive statistics with mean (*m*) and standard deviation (*sd*) was applied to measure each questionnaire item. Besides, student T-test was used to evaluate the differences between YTU & MTU teachers and between YTU & MTU students. In the figures, \* refers  $p < 0.05$  and \*\* refers  $p < 0.01$ .

As of August 2016, both YTU and MTU universities do not implement its own e-learning academic courses. In this survey, YTU teachers, MTU teachers, YTU students and MTU students are classified as four groups. All the roles from professors to tutors are remarked as teacher group and all the students from different classes are inserted into student groups. Most teachers and students there have no experiences in developing and accessing e-learning course even though a few numbers of teachers have experienced in e-learning training provided by foreign-aids and other universities. Fifty-four teachers and 129 students of YTU were participated to respond the questionnaires. Thirty teachers and 519 of MTU were participated in this preliminary assessment.

**4. Results and Discussion**

The findings of this study presented as following:

**4.1 Feedbacks of Characteristics**

**4.1.1 Comparison of Teacher Feedbacks**

This study reveals the attitudes of teachers from different departments of YTU and MTU on e-learning initiatives. In Fig1, the top three items of YTU teachers were C5( $m=4.35, sd=0.70$ ), C6( $m=4.24, sd=0.93$ ) and C7( $m=4.19, sd=0.62$ ). At the same time, three highest means of MTU teachers were C5( $m=4.33, sd=0.66$ ), C6 ( $m=4.37, sd=0.81$ ) and C8( $m=4.47, sd=0.57$ ). Although YTU teachers offered positive responses, i.e. SA+ A, over 83% on C8, it was not included into three highest mean items. YTU and MTU teachers assume that they have not enough IT competency for e-learning because mean on C3 is the lowest one. Moreover, mean value on C4 is low because both YTU and MTU have not experience in e-learning course until 2016. But no significant difference between two teacher groups was seen in all items, except C1 and C8. This finding noted that most of teachers has no prior experience in any e-learning system for teaching purposes although they have basic IT skills as being teachers of technological universities.

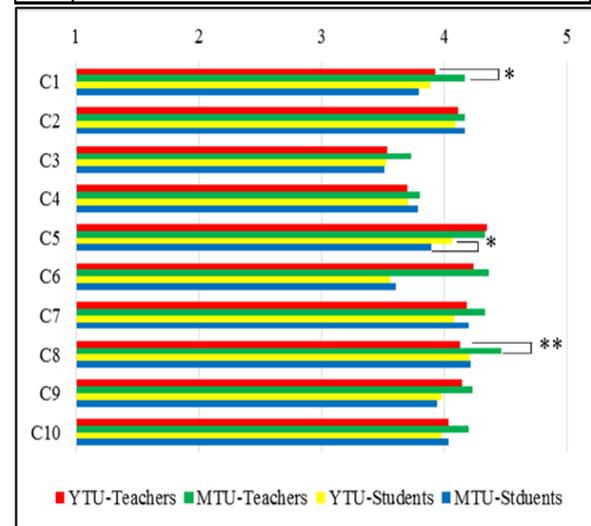
**4.1.2 Comparison of Student Feedbacks**

The two highest means of both YTU students and MTU students are the same. YTU students responded SA + A on C7( $m=4.09, sd=0.73$ ) and on C8 ( $m=4.21, sd=0.71$ ). MTU students replied positive responses on C7 ( $m=4.20, sd=0.69$ ) and C8 ( $m=4.22, sd=0.75$ ). YTU student gave the same mean to C2 like C7. The mean values on C1, C3, C4, C6 and C9 generated from two

student groups are low. The significant difference was observed in C5 with  $p < 0.05$ . YTU students' computer usage at home is more than MTU students' one because mean value of YTU student is higher than MTU students on C5. The Student T-tests revealed that both YTU and MTU students have the same characteristics except C5. Furthermore, not only YTU students ( $m=3.53, sd=0.89$ ) but also MTU students ( $m=3.52, sd=1.01$ ) responded on C3 as their lowest mean item. Like teacher groups, students from YTU and MTU should be promoted to have enough IT competency. This findings display that most students have positive attitudes even though they worry to access e-learning materials.

Table 1. List of Characteristics Questionnaires

Characteristics	
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.



**Fig1. Comparison of Mean Values on Positive Feedbacks (SA&A) for Characteristics**

**4.2 Feedbacks of Facilities**

**4.2.1 Comparison of Teacher Feedbacks**

Two highest means of YTU teachers and MTU teachers are the same. YTU teachers replied their positive attitudes on F4( $m=4.20, sd=0.90$ ) and F6 ( $m=4.13, sd=0.67$ ). MTU teachers gave their responses

on F4( $m=3.87, sd=1.38$ ) and F6( $m=4.23, sd=0.68$ ). Additionally, both YTU teachers ( $m=3.26, sd=0.91$ ) and MTU teachers ( $m=2.70, sd=0.75$ ) replied the same attitudes on F5 as their least mean item. The statistically significant differences were observed in F1 with  $p<0.05$ , F3 and F5 with  $p<0.01$  but no significant difference were revealed for other items. Those findings showed that both YTU and MTU teacher groups have same positive attitudes on e-learning facilities. Moreover, the study reveals that the university network and IT infrastructure maintenance might be better at YTU than MTU.

Table 2. List of Facilities Questionnaires

Facilities	
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 infrastructure can support e-learning well.

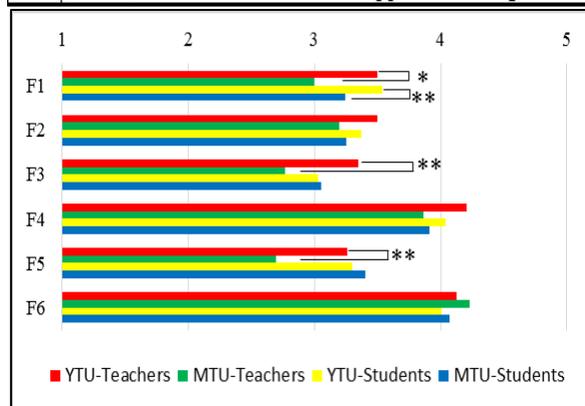


Fig 2. Comparison of Mean Values on Positive Feedbacks (SA & A) for Facilities

#### 4.2.2 Comparison of Student Feedbacks

The top three mean items of YTU students were F1( $m=3.54, sd=0.94$ ), F4( $m=4.04, sd=1.11$ ) and F6( $m=4.01, sd=0.69$ ). Like YTU students, MTU students responded their top three means on F1( $m=3.24, sd=1.34$ ), F4( $m=3.91, sd=1.30$ ) and F6( $m=4.07, sd=0.82$ ). The results show that no significant difference could be observed in other items, except F1. Besides both technological universities have same lowest mean item on e-learning facilities. The YTU students( $m=3.03, sd=1.04$ ) and MTU students( $m=3.05, sd=1.25$ ) gave same lowest feedbacks on F3. This finding revealed that generally both student groups have positive attitude on facilities of their universities, except network speed.

#### 4.3 Feedbacks of E-learning Environment

##### 4.3.1 Comparison of Teacher Feedbacks

The three highest mean items of YTU teachers are E8( $m=4.19, sd=0.59$ ), E10( $m=4.11, sd=0.57$ ) and E13( $m=4.09, sd=0.52$ ). MTU teachers replied SA and A on E8( $m=4.17, sd=0.53$ ), E10( $m=4.17, sd=0.53$ ) and E13( $m=4.23, sd=0.57$ ). Moreover, MTU teachers gave the same mean values on E7 like E13. They gave the same mean on E14 like E8 and E10. The lowest mean item of both teacher groups is the same. YTU teachers ( $m=3.24, sd=0.75$ ) and MTU teachers ( $m=3.47, sd=0.86$ ) replied E3 as their lowest mean item. The student T-test revealed that no significant difference was observed. Moreover, it showed that both groups have same positive feedbacks for their e-learning environment but they are weak in discussion and knowledge sharing for e-learning at their academic environment.

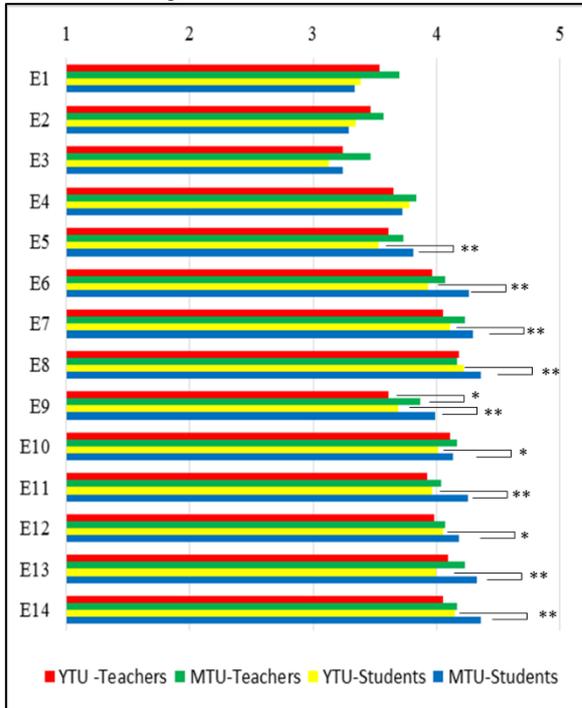
Table 3. List of E-learning Environment Questionnaires

E-learning Environment	
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 work.
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.

##### 4.3.2 Comparison of Student Feedbacks

Like the teachers, the students responded positive attitudes in their e-learning environment questionnaires. Over 91% of YTU students and 89% of MTU students said that e-learning is an efficient means of disseminating information. YTU students gave positive responses on E8 ( $m=4.22, sd=0.59$ ) and MTU students also replied on the same item( $m=4.36, sd=0.72$ ) as their highest mean. Moreover, 89% of MTU students replied the same mean to E14 ( $m=4.36, sd=0.75$ ) like E8. On the other side, 83% of YTU students replied positive feedbacks to E14 ( $m=4.15,$

$sd=0.73$ ) as their second highest mean. In environmental dimension, the results show that a significant difference between YTU and MTU students is observed in E5, E6, E7, E8, E9, E10, E11, E12, E13 and E14 with  $p<0.001$ . However, the student T-test revealed that no significant difference in other items, E1 to E4. E3 was replied by both YTU students ( $m=3.13, sd=0.84$ ) and MTU students ( $m=3.24, sd=1.04$ ) as their lowest mean item. Those findings revealed that both teacher and student groups from two technological universities should be encouraged to get better e-learning environment.



**Fig 3. Comparison of Mean Values on Positive Feedbacks (SA&A) for E-learning Environment**

**4.4 Feedbacks of E-learning Management**

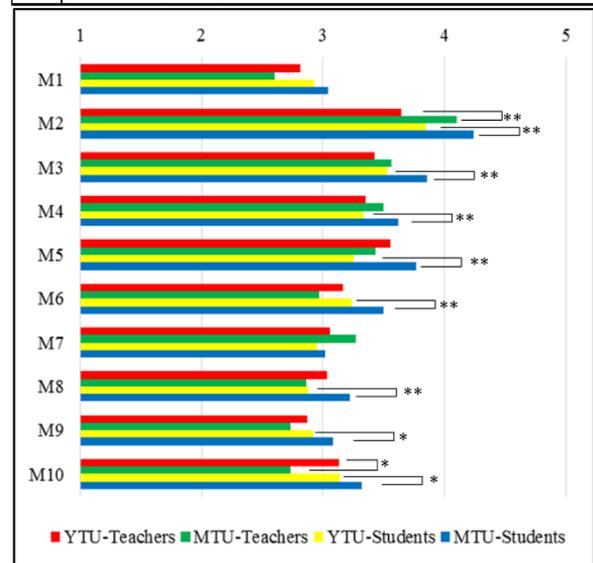
**4.4.1 Comparison of Teacher Feedbacks**

The results indicate that both technological universities have the same highest mean item. Three highest means of YTU teachers are M2 ( $m=3.65, sd=0.78$ ), M3 ( $m=3.43, sd=0.72$ ) and M5 ( $m=3.56, sd=0.60$ ). Like YTU, MTU teachers replied on M2 ( $m=4.10, sd=0.61$ ), M3 ( $m=3.57, sd=0.73$ ) and M5 ( $m=3.43, sd=0.77$ ) as its three highest mean items. The student T-test revealed that no significant difference was observed except M2 and M10. And, as lowest mean, M1 was replied by both YTU teachers ( $m=2.81, sd=0.68$ ) and MTU teachers ( $m=2.60, sd=0.72$ ). This findings indicate that both technological universities have no enough budgets to implement e-learning education up to present. Both YTU and MTU are still weak in e-learning management because most mean values generated from management dimension are lower than ones from

other e-learning dimensions. However teachers from YTU and MTU have positive attitudes on e-learning.

**Table 4. List of E-learning Management Questionnaires**

E-learning Management	
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 to support me in using e-learning.
M5	My university's IT technician(s) has sufficient IT competency to support my use of e-learning.
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-learning.
M10	Overall, the technical support of my university is adequate to support e-learning.



**Fig 4. Comparison of Mean Values on Positive Feedback (SA & A) for E-learning Management**

**4.4.2 Comparison of Student Feedbacks**

YTU and MTU students' feedbacks revealed that their two highest mean items are the same. YTU students responded M2 ( $m=3.84, sd=0.88$ ) and M3 ( $m=3.53, sd=0.89$ ) while MTU student responded SA and A to M2 ( $m=4.24, sd=0.79$ ) and M3 ( $m=3.86, sd=0.84$ ). The result showed that statistically significant difference are seen except M1 and M7. However YTU students replied M8 ( $m=2.88, sd=0.77$ ) as their lowest mean item while MTU students ( $m=3.02, sd=1.01$ ) gave M7 as their lowest mean item. The study reveals that MTU have more training opportunities for students than YTU. And both students replied that their university/faculty does not have enough budget for e-learning. This findings

indicated that both student groups replied their willingness for e-learning even though their universities could not provide e-learning training and they are weak in technical experience for e-learning education.

## 5 Conclusion and Future Work

The current study investigates the e-learning readiness of YTU and MTU based on their teachers' and students' attitudes. The findings of this research recommend that teachers and students of both COE technological universities wish to apply e-learning into their teaching and learning. But their universities' current facilities and educational environment could not cover to implement and deliver e-learning courses themselves. As a key result, this study reveals that strengths and weakness of teachers and students from both universities are similar. Their major burdens which limit e-learning education are seen as network infrastructure, weakness of knowledge sharing, technical problems and lack of enough training. Moreover, the study indicates that YTU and MTU should be provided by e-learning experts and trainings for better ICT education. At the same time, YTU and MTU should be carried out renovations to reform current infrastructures for utilizing e-learning. Further the legal issues on ICT usage and e-learning courses must be in place for Myanmar's COE technological universities; YTU and MTU. The finding of this study provide in design and implementation of e-learning contents for both YTU and MTU. As future work, we aim to build e-learning courses and share them to both COE technological universities.

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