AFFECTING FACTORS OF STUDENTS' SATISFACTION ON E-LEARNING AND UNIVERSITY BRAND IMAGE IN YANGON, MYANMAR DURING COVID-19

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Abstract

The purpose of this study was to study factors affecting students' satisfaction on e-learning and university brand image during covid-19 pandemic in the top ten private universities in Yangon, Myanmar. Sample size was 500 students who have been experiencing e-learning at least one semester at the top ten private universities in Yangon, Myanmar. The sample techniques used were judgmental, quota, convenience and snowball sampling. After the data collection, confirmatory factor analysis (CFA) and structural equation modeling (SEM) approach were used to measure data's validity, reliability and goodness of fit. The results showed that student satisfaction was affected by e-learning system quality, e-learning instructor and course materials quality, administrative and support service quality, and marketing innovation towards university brand image. In contrary, information quality and interaction in e-learning environment had no effect on student satisfaction. Academic practitioners and universities can promote advantages of e-learning system to create better students' satisfaction and ensure the good image of the university.

Keywords: E-Learning, Student satisfaction, University brand image, Marketing innovation Covid-19.

Introduction

The internet era has remarked the new way of teaching and learning method, shifting teacher centered to student-center education. Higher education sector across countries has been sourcing the updated online learning technology which could transform the traditional classroom to be interactive online learning to ensure the most learning effectiveness of learners (Rosenberg, 2001). The education sector has been tremendously affected from the outbreak of covid-19. The pandemic has caused a new way of education system worldwide. Education officials had been forced to close the schools and universities to comply with the health protection act. All physical classroom had been stopped and the education institution has urgently made a decision to find ways to continue classes while all students are required

to stay home (Ei Su et al., 2020). The fast internet speed in Myanmar has been developed to eligible learners to access learning anytime and anywhere which leads to solutions for higher education and economic development in the country. Myanmar students are facilitated with the use of the internet to enquire lessons and up-to-date knowledge via e-learning more conveniently. Thus, universities in Myanmar have enlarged equality in higher education in wider areas nationwide (Khaing et al., 2016).

Objectives of the Study

This study specified factors affecting students' satisfaction on e-learning and university brand image. The key variables used to craft the research objectives are e-learning system quality, e-learning instructor and course materials quality, e-learning administrative and support service quality, information quality, interaction in e-learning environment, marketing innovation, student satisfaction, and brand image.

Research Framework

The research framework was adopted from empirical studies of e-learning. Four previous literatures were adapted to propose the conceptual framework (Stefanovic et al., 2011; Pham et al., 2019; Amir, 2012; Shehzadi et al., 2021). The conceptual framework is illustrated as of Figure 1.

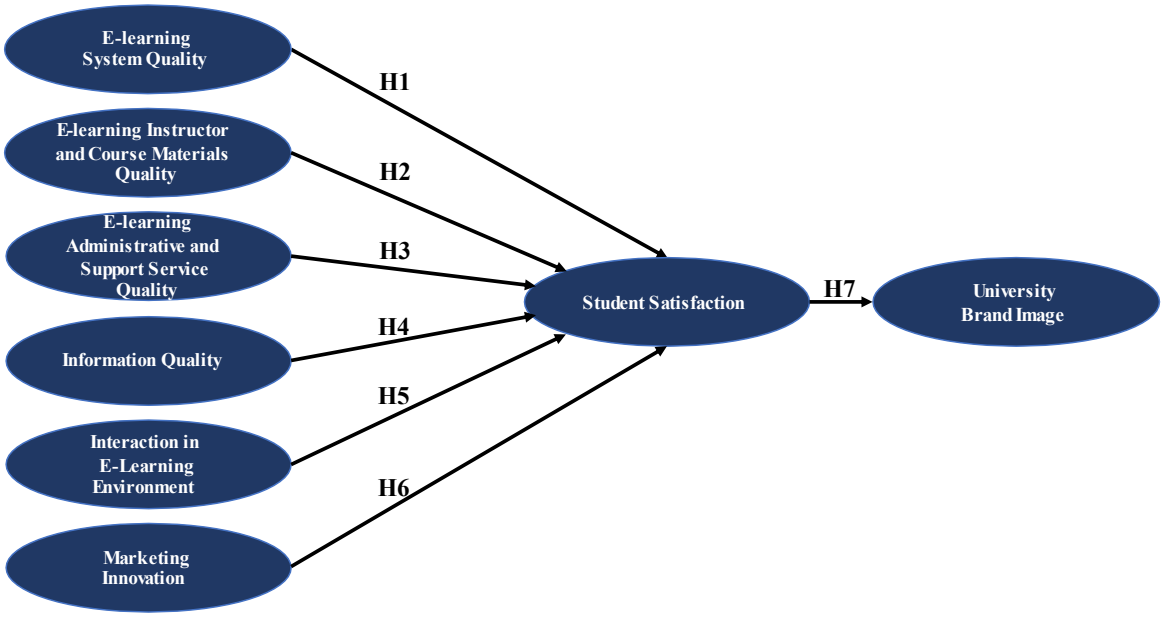

Figure 1 Conceptual Framework

Significance of the Study

The importance of this study can be referred from that the use of e-learning during the period of pandemic should be extended not just only the system adoption but also all other perspectives that could uplift the e-learning to actually helps learners and students to

use it more effectively, aiming during and post covid-19 pandemic. The research's finding will offer the clear concept and consideration on the elements impacting student's satisfaction and university image.

Literature Review

1. E-Learning System Quality

System quality is a term that describes the content quality of an information system (Majed, 2013). Wong and Huang (2011) examined the positive impact of e-learning system quality on e-learning adoption. Previous researches on e-learning have shown that the quality of the system had a positive effect on student satisfaction (Almaiah & Alismaiel, 2019). As a result, the following hypothesis is emerged.

H1: E-Learning system quality has a significant effect on student satisfaction.

2. E-Learning Instructor and Course Material Quality

According to Boyd (2008), the timeliness and quality of the lecturer to communicate with students has been an instrument of the course completion. Hassanzadeh et al. (2012) said that the quality of course content has a positive relationship with students' satisfaction. Therefore, the following hypothesis is proposed.

H2: E-learning instructor and course materials quality have a significant effect on student satisfaction.

3. E-Learning Administrative and Support Service Quality

All on-campus and off-campus facilities are designed to be effective and convenient for students based on services that include enquiries, admissions, advancement, graduation, fees, and other dues (Sims et al., 2002). Gorla and Somers (2014) reported that service quality has a good impact on the satisfaction of users. Thus, the quality of service is expected to have an influence on student satisfaction. From the above discussion, this study suggests below hypothesis.

H3: Administrative and support service quality have a significant effect on student satisfaction.

4. Information Quality

Information quality is described as good and accurate information content. The quality of information which rises or declines the effectiveness of the information system, including the e-learning system (Michnik & Lo, 2007). According to Gurkut and Nat (2017), the information quality had a positive impact on student satisfaction. Based on the above discussion, the following hypothesis is recommended:

H4: Information quality has a significant effect on student satisfaction.

5. Interaction in E-Learning Environment

Interaction has a remarkable impact on student learning and promotes online learning. For students and instructors, interaction is a key part of coursework's achievement

(Hirumi, 2002). The quality of interaction in e-learning environment is considered to help in predicting the "overall quality of the e-learning service", showing an important effect on student satisfaction (Daultani et al., 2021). Consequently, a hypothesis is set:

H5: Interaction in e-learning environment has a significant effect on student satisfaction.

6. Marketing Innovation

Marketing innovation is the latest marketing strategy to make prominent changes to a product or packaging, product placement, product promotion or price (OECD, 2005). In the higher education industry, researchers discussed that marketing innovation can improve student satisfaction (Veer Ramjeawon & Rowley, 2018). Therefore, it is possible to test this hypothesis:

H6: Marketing innovation has a significant effect on student satisfaction.

7. Student Satisfaction

Students' satisfaction is the short-term approach to examining their involvement with the education services (Marzo Navarro et al., 2005; Didyasarin et al., 2017). Davies et al. (2003) discovered a strong relationship between the image of brand and the satisfaction of consumer. Alves and Raposo (2010) emphasize that the corporate image of university plays a key role in student satisfaction and loyalty. Based on the above assumption, a hypothesis is proposed:

H7: Student satisfaction has a significant effect on university brand image.

Research Methodology

The quantitative method was applied to distributing online questionnaires directly to students via administration office and lecturer council of ten selected private universities, composing with screening question (1), five-point Likert scale (40), and demographic profile (5).

1. Population and Sample Size

Researcher considered to target students from top ten private universities in Yangon, Myanmar and have experience in using e-learning at least one semester. The minimum sample size of this study is recommended at 444 by Soper (2022), considering anticipated effect sample size at 0.2, desired statistical power level at 0.8, 8 latent variables, 39 observed variables, and probability level of 0.05. However, researcher considered to collect 500 participants as appropriate.

2. Sampling Techniques

Firstly, judgmental sampling was to select students who have been studying in top ten private universities in Yangon, Myanmar and have been experiencing e-learning at least one semester during COVID-19 pandemic. Secondly, quota sampling divides 50 participants evenly per university, combining 10 universities of 500 participants. Thirdly, convenience sampling is to distribute online questionnaire by chat application, social medias and emails. Lastly, snowball sampling was to encourage students to share an online survey link to their group of

friends within their network.

Results and Discussion

1. Demographic Information

The questionnaire distribution was made to 500 students who have been experiencing e-learning at least one semester during the COVID-19 pandemic of top ten universities in Yangon, Myanmar. The demographic questions and results are presented as of Table 1.

Table 1 Demographic Results

N=500	Demographic Questions	Students (n=500)
Gender	Male	44.4%
	Female	55.6%
Age	20 years old or below	40.2%
	Between 21-30 years old	31.2%
	Between 30-40 years old	20.0%
	41 years old or above	8.6%
Program	Bachelor's degree	59.6%
	Master's degree	25.0%
	Ph.D.	11.6%
	Others	3.8%
How many hours you are using e-learning per week?	4 hours/week or below	3.0%
	5-10 hours/week	11.6%
	11-15 hours/week	55.0%
	16 hours/week or over	30.4%
Resident status	Parent's home	40.2%
	Independent	20.2%
	Dormitory	25.0%
	Others	14.6%

Source: Created by the author

2. Confirmatory Factor Analysis (CFA)

CFA was measured by SPSS AMOS statistical software. The results in Table 2 explicate Cronbach's Alpha coefficient value at over 0.60 (Cronbach, 1951), factor loading at above 0.50 (Hair et al.,2006), composite reliability (CR) values at greater than 0.70 and Average variance extracted (AVE) at over 0.40 (Fornell & Larcker, 1981). Consequently, the convergent and discriminant validity were guaranteed in the CFA.

Table 2 Confirmatory Factor Analysis Result, Composite Reliability (CR) and Average Variance Extracted (AVE)

Latent Variables	Source of Questionnaire	No. of Items	Cronbach's Alpha	Factors Loading	CR	AVE
E-learning System Quality (ESQ)	Pham et al. (2019)	6	0.858	0.680 - 0.740	0.859	0.503
E-learning Instructor and Course Materials Quality (ICQ)	Pham et al. (2019)	8	0.859	0.538 - 0.714	0.861	0.438
E-learning Administrative and Support Service Quality (ASS)	Pham et al. (2019)	4	0.916	0.731- 0.971	0.917	0.736
Information Quality (IQ)	Sultan and Wong (2012)	3	0.875	0.796 - 0.839	0.875	0.700
Interaction in E-Learning Environment (IEE)	Stefanovic et al. (2011)	5	0.862	0.671 - 0.805	0.863	0.559
Marketing Innovation (MI)	Cheng et al. (2019)	5	0.854	0.663 - 0.798	0.855	0.543
Student Satisfaction (SS)	Annamdevula and Bellamkonda, (2016)	4	0.768	0.616 - 0.733	0.769	0.456
University Brand Image (BI)	Gupta and Acharya, (2017)	4	0.798	0.660 - 0.769	0.798	0.498

Source: Created by the author

The convergent validity was proven in the case of CR value shows AVE is greater value than 0.40 ((Fornell & Larcker, 1981). According to Table 3, the discriminant validity presents that AVE of each construct does not go above the correlation among variables and values are not higher than 0.80. Consequently, the strength of association among eight pairs of variables has no multicollinearity issue

Table 3 Discriminant Validity

	MI	ESQ	ICQ	ASS	IQ	IEE	BI	SS
MI	**0.737**							
ESQ	0.460	**0.709**						
ICQ	0.555	0.526	**0.662**					
ASS	0.373	0.449	0.568	**0.858**				
IQ	0.415	0.546	0.621	0.706	**0.837**			
IEE	0.312	0.109	0.382	0.229	0.308	**0.747**		
BI	0.160	0.263	0.215	0.282	0.276	0.044	**0.706**	
SS	0.563	0.526	0.595	0.512	0.491	0.267	0.187	**0.675**

Note: The diagonally listed value is the AVE square roots of the variables

Source: Created by the author

3. Structural Equation Model (SEM)

The results of measurement and structural models show acceptable model fit. Furthermore, the results can be validated for convergent and discriminant validity as shown in Table 4.

Table 4 Goodness of Fit for Measurement and Structural Model

Index	Acceptable Values	Measurement Model No Adjustment	Structural Model After Adjustment
CMIN/DF	< 3.00 (Hair et al., 2006)	1161.027/674 = 1.723	1547.009/647 = 2.391
GFI	≥ 0.80 (Baumgartner & Homburg, 1996)	0.892	0.834
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.875	0.800
NFI	≥ 0.80 (Wu & Wang, 2006)	0.887	0.850
CFI	≥ 0.80 (Wu & Wang, 2006)	0.949	0.906
TLI	≥ 0.80 (Wu & Wang, 2006)	0.944	0.892
RMSEA	< 0.08 (Pedroso et al., 2016)	0.038	0.053
Model summary		**Acceptable Model Fit**	**Acceptable Model Fit**

Remark: CMIN/DF = The ratio of the chi-square value to degree of freedom, GFI = goodness-of-fit index, AGFI = adjusted goodness-of-fit index, NFI, normalized fit index, CFI = comparative fit index, TLI = Tucker-Lewis index, and RMSEA = root mean square error of approximation.

4. Hypothesis Testing Result

The hypothesis results of the structural equation model reflect in standardized path coefficient (β) and t-value with the significant value criterion of $p<0.05$ to confirm a structural pathway (Table 5)

Table 5 Hypothesis Result of the Structural Equation Model

Hypothesis	Standardized path coefficient (β)	t-value	Testing result
H1: ESQ → SS	0.271	5.245*	Supported
H2: ICQ → SS	0.249	4.758*	Supported
H3: ASS → SS	0.298	5.876*	Supported
H4: IQ → SS	-0.009	-0.217	Not Supported
H5: IEE → SS	0.059	1.226	Not Supported
H6: MI → SS	0.286	5.458*	Supported

Hypothesis	Standardized path coefficient (β)	t-value	Testing result
H7: SS → BI	0.374	3.746*	Supported

Note: * p<0.05

Source: Created by the author.

The results of hypothesis testing and structural model are explained per followings.

H1 confirmed the significant relationship between e-learning system quality and student satisfaction at the value of standard coefficient = 0.271 (t-value = 5.245).

H2 was supported in a relationship of e-learning instructor and course materials quality, and student satisfaction, resulting standard coefficient value = 0.249 (t-value = 4.758).

H3 showed that administrative and support service quality had a significant effect on student satisfaction with standard coefficient value = 0.298 (t-value = 5.876).

H4 was not supported the relationship between information quality and student satisfaction as of the standard coefficient value = -0.009 (t-value = -0.217).

H5 opposed with many researchers on the significant relationship between interaction in e-learning environment and student satisfaction with the standard coefficient value = 0.059 (t-value = 1.226).

H6 found that marketing innovation had a significant effect on student satisfaction to use e-learning system, showing standard coefficient value = 0.286 (t-value = 5.458).

H7 indicated the influence between student satisfaction and university brand image, showing the highest value of standard coefficient value = 0.374 (t-value = 3.746).

Conclusions, Recommendations, Limitations and Future Research

1. Conclusions

The results showed that student satisfaction was affected by e-learning system quality, e-learning instructor and course materials quality, administrative and support service quality, and marketing innovation towards university brand image as confirmed by many scholars. Wong and Huang (2011) examined the positive e-learning system quality impacted e-learning adoption. Boyd (2008) confirmed the timeliness and quality of the lecturer to communicate with students has been instrumental in understanding the course completion. Gorla and Somers (2014) reported that service quality positively impacted users' satisfaction. In the higher education industry, marketing innovation plays a key role to improving student satisfaction (Veer Ramjeawon & Rowley, 2018). Alves and Raposo (2010) emphasize that the corporate image of university plays a key role in student satisfaction.

On the other hand, information quality and interaction in e-learning environment had no effect on student satisfaction which contradicted with many literatures. Gurkut and Nat (2017) posted that information quality had a positive impact on satisfaction. This study

opposed such conclusion due to the quality of information may not relevant during the pandemic since all students must comply with the e-learning conduct. In addition, the interaction in e-learning environment is considered to be overall quality of the e-learning service, showing no significant effect on student satisfaction as contradicted with Daultani et al. (2021).

2. Recommendations

Academic practitioners and universities can apply the recommendation produced from the findings of this research in order to retain the use of e-learning among students. Management and administrators will be steered on which important determinants should be focused to improve better e-learning system, build better satisfaction of students and ensure the good image of the university. For academic researcher, the examination will reveal significant theories and variables to enhance their future research.

3. Limitations and Future Research

There are several limitations of this study that should be considered to include in the future literature. Firstly, the additional constructs and adjustment of conceptual framework should be considered. Secondly, this study focuses on the top ten private universities in Yangon, Myanmar. Therefore, the different geographical areas potentially produce the different results. Lastly, qualitative approach is suggested to be conducted further for the better implication of findings.

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