



THE USE OF LMS BY STUDENTS IN MALAYSIAN
UNIVERSITIES

BY

AYISH S. M. ALNJJAR

A dissertation submitted in fulfilment of the requirement for
the degree of Master of Science (Marketing)

Kulliyyah of Economics and Management Science
International Islamic University Malaysia

MAY 2019

ABSTRACT

In view of the increased adoption of technology by higher learning institutions around the world, this study aims to examine the extent to which Learning Management Systems (LMS) are being used by students in Malaysian universities. The study proposes a modified version of the Technology Acceptance Model (TAM). Specifically, the study investigates how students' self-efficacy impacts their perceptions of the LMS' usefulness and ease of use and how those perceptions influence students attitude to actually use the LMS of their universities. The quantitative research method was employed to collect and analyse data. A total of 288 usable questionnaires were received from students in 17 public and private universities in the Klang Valley region. The Statistical Package for the Social Sciences (SPSS) was used to perform descriptive statistics and exploratory factor analysis, while the Analysis of Moment Structures (AMOS) software was used to perform structural equation modelling (SEM) which constitutes of confirmatory factor analysis and hypotheses in order to answer the research questions. The findings revealed that self-efficacy has a significant positive effect on perceived ease of use and perceived usefulness of the LMS. Students' attitude towards using the LMS of their universities was found to be significantly influenced by their perceptions of the usefulness and ease of using the system. It was also revealed that when students perceived a system to be easy to use their perception of its usefulness was high. Finally, students' attitude towards using universities' learning management systems significantly influenced the actual use of those systems. Overall, the study had several contributions to theoretical knowledge and how it is being practiced within higher learning institutions in Malaysia. Both students and universities may benefit from these findings in order to enhance the experience of using LMS which in turn is expected to positively impact the performance on various levels, and this can be an objective for future studies. However, despite these contributions, there have been some limitations related to the lack of updated official statistics about the number of students and the nature of using LMS in Malaysian universities, in addition to some difficulties during the data collection process.

مُلخّص البحث

بالنظر إلى الازدياد المضطرد في مستوى تبني الجامعات حول العالم لاستخدام التكنولوجيا الحديثة، فقد هدفت هذه الدراسة لفحص مدى استخدام نظام إدارة التعلم الإلكتروني من قبل الطلاب في الجامعات الماليزية. اعتمدت الدراسة على أنموذج معدل لأنموذج قبول التكنولوجيا (TAM) في محاولة للتعرف على العوامل التي تساهم في زيادة استخدام الطلاب في الجامعات الماليزية لنظام إدارة التعلم الإلكتروني. على وجه الخصوص اهتمت بمدى تأثير كفاءة الطلاب الذاتية على تصورهم لسهولة استخدام نظام إدارة التعلم الإلكتروني وكذلك للفوائد المتوقعة الحصول عليها، وكيف يؤثر ذلك على نظرهم لذلك النظام ومستوى استخدامهم الفعلي له. استخدم الباحث طريقة البحث الكمي في هذه الدراسة لجمع البيانات المطلوبة من خلال استبانة محوسبة تم توزيعها عبر الإنترنت. تم الحصول على 288 استبانة من طلاب مسجلين في 17 مؤسّسة تعليمية في منطقة وادي كلانج. لتحليل البيانات وفحص الفرضيات استخدم الباحث كلا من الحزمة الإحصائية للعلوم الاجتماعية (SPSS) وتحليل هياكل اللحظات (AMOS) من خلال تنفيذ أنموذج المعادلة الهيكلية (SEM). أظهرت النتائج أن كفاءة الطلاب الذاتية تؤثر بشكل إيجابي على تصورهم لمدى سهولة استخدام نظام إدارة التعلم الإلكتروني ومقدار الفوائد المرجوة منه. كما خلصت الدراسة إلى أن لهذا التصور علاقة مباشرة مع موقف الطلاب من استخدام نظام إدارة التعلم الإلكتروني وهو ما يؤدي على الاستخدام الفعلي لذلك النظام. بشكل عام فإن للدراسة العديد من المساهمات النظرية والعملية والتي تفيد في تحسين أداء كل من الطلاب والجامعات. وبالرغم من تلك المساهمات الإيجابية، فقد واجه الباحث بعض العقبات التي تتعلق بعدم توفر إحصائيات عن عدد وبيانات طلبة الجامعات في ماليزيا بالإضافة إلى صعوبات خلال مرحلة جمع البيانات الخاصة بالدراسة.

APPROVAL PAGE

I certify that I have supervised and read this study and that in my opinion; it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a thesis for the degree of Master of Science (Marketing)

.....
Muhammad Tahir Jan
Supervisor

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a thesis for the degree of Master of Science (Marketing)

.....
Suharni Bt. Maulan
Examiner

.....
Nur Arfifah Binti Abdul Sabian
Examiner

This dissertation was submitted to the Department of Business Administration and is accepted as a fulfilment of the requirement for the degree of Master of Science (Marketing)

.....
Noor Hazilah Abd Manaf
Head, Department of Business
Administration

This dissertation was submitted to the Kulliyah of Economics and Management Sciences and is accepted as a fulfilment of the requirement for the degree of Master of Science (Marketing)

.....
Hassanuddeen Abdul Aziz
Dean, Kulliyah of Economics and
Management Sciences

DECLARATION

I hereby declare that this dissertation is the result of my own investigations, except where otherwise stated. I also declare that it has not been previously or concurrently submitted as a whole for any other degrees at IIUM or other institutions.

Ayish S. M. Alnjar

Signature

Date

INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

**DECLARATION OF COPYRIGHT AND AFFIRMATION OF
FAIR USE OF UNPUBLISHED RESEARCH**

THE USE OF UNIVERSITY LMS BY STUDENTS IN MALAYSIA

I declare that the copyright holders of this dissertation are jointly owned by the student and IIUM.

Copyright © 2019 Ayish S. M. Alnjar and International Islamic University Malaysia. All rights reserved.

No part of this unpublished research may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without prior written permission of the copyright holder except as provided below

1. Any material contained in or derived from this unpublished research may be used by others in their writing with due acknowledgment.
2. IIUM or its library will have the right to make and transmit copies (print or electronic) for institutional and academic purposes.
3. The IIUM library will have the right to make, store in a retrieved system and supply copies of this unpublished research if requested by other universities and research libraries.

By signing this form, I acknowledged that I have read and understand the IIUM Intellectual Property Right and Commercialisation policy.

Affirmed by Ayish S. M. Alnjar

.....
Signature

.....
Date

DEDICATION

This thesis is dedicated to the soul of my late father, who taught me that the best kind of knowledge to have is that which is learned for its own sake. It is also dedicated to my mother, who taught me that even the largest task can be accomplished if it is done one step at a time.

ACKNOWLEDGMENTS

Firstly, it is my utmost pleasure to dedicate this work to my dear parents and my family, who granted me the gift of their unwavering belief in my ability to accomplish this goal: thank you for your support and patience.

I wish to express my appreciation and thanks to those who provided their time, effort and support for this project. To the members of my dissertation committee, thank you for sticking with me.

Finally, a special thanks to Dr. Muhammad Tahir Jan for his continuous support, encouragement and leadership and for that, I will be forever grateful.

TABLE OF CONTENTS

Abstract	I
Abstract in Arabic	II
Approval Page	III
Declaration	IV
Copyright	V
Dedication	VI
Acknowledgment	VII
List of Tables	XI
List of Figures	XII
List of Abbreviations	XIII
CHAPTER ONE:	1
1.1 Background of the Study	1
1.2 Problem Statement	3
1.3 Research Objectives	6
1.3.1 General Objectives of the Study	7
1.3.2 Specific Objectives of the Study	8
1.4 Research Questions	8
1.5 Significance of the Study	9
1.6 Scope of the Study	10
1.6.1 Geographical Scope	11
1.6.2 Conceptual Scope	11
1.7 Definitions of the Key Terms	11
1.8 Structure of the Thesis	13
1.9 Chapter Summary	14
CHAPTER TWO:	15
2.1 Introduction	15
2.2 The Evolution of The Online System in Education Sector	16
2.3 Education Industry in Malaysia	17
2.3.1 Types of LMS in Malaysia	19
2.3.2 Students Perception Towards LMS in Malaysia	20
2.4 Technology Acceptance Model	22
2.5 Social Cognitive Theory	26
2.6 Conceptual Framework of the Study	27
2.7 The Conceptual Framework Variables	28
2.7.1 The Impact of Self-efficacy on the Use of University LMS	28
2.7.2 The Effect of Perceived Usefulness Toward Using the University LMS	29
2.7.3 The Effect of Perceived Ease of Use Toward Using the University LMS	31
2.7.4 The Impact of Attitude on the Actual Use of the University LMS	32
2.7.5 The Actual Use of the University LMS	33
2.8 Chapter Summary	34

CHAPTER THREE:	36
3.1 Introduction	36
3.2 Research Design	36
3.3 Study Population and the Sample Size	37
3.4 Measurements of Variables	38
3.4.1 Measure of Self-efficacy	38
3.4.2 Measure of Perceived Usefulness	39
3.4.3 Measure of Perceived Ease of Use	40
3.4.4 Measure of Attitude	41
3.4.5 Measure of the Actual Use of LMS	42
3.5 Research Instrument	43
3.6 Research Measurement	43
3.6.1 Validity of Research Instrument	43
3.6.2 Reliability of Research Instrument	44
3.7 Data Collection	45
3.8 Data Processing and Analysis	45
3.9 Chapter Summary	46
 CHAPTER FOUR:	 47
4.1 Introduction	47
4.2 Response Rate	47
4.3 Data Screening and Preparation	48
4.3.1 Missing Values	48
4.3.2 Test of Outliers	49
4.3.3 Test of Normality	49
4.3.4 Test of Multicollinearity	50
4.4 Descriptive Analysis	52
4.4.1 Frequencies for the Demographic Profile of the Respondents	52
4.5 Reliability Analysis	55
4.6 Exploratory Factor Analysis	56
4.7 Confirmatory Factor Analysis	59
4.8 Structural Model (Path Analysis)	62
4.9 Hypotheses Testing	63
4.10 Chapter Summary	64
 CHAPTER FIVE:	 65
5.1 Introduction	65
5.2 Answering Research Questions	65
5.2.1 Does Self-Efficacy Influence Perceived Usefulness of the LMS to Students in the Malaysian Universities?	65
5.2.2 Does Self-Efficacy Influence Perceived Ease of Use of Using the LMS by Students in the Malaysian Universities?	67
5.2.3 What is the Impact of Perceived of Usefulness on the Attitude Toward Using the LMS by Students in the Malaysian Universities?	68
5.2.4 What is the Impact of Perceived Ease of Use on the Attitude toward Using the LMS by Students in the Malaysian Universities?	69

5.2.5	Does Perceived Ease of Use Influence Perceived Usefulness of Using the LMS by Students in the Malaysian Universities?	70
5.2.6	Does Attitude Impact the Actual Use of LMS by Students in the Malaysian Universities?	71
5.3	Contributions of the Study	71
5.3.1	Academic Contribution	71
5.3.2	Managerial Implications	72
5.3.3	Contribution to the Literature	72
5.4	Limitations	73
5.5	Recommendations	74
5.6	Chapter Summary	75
REFERENCES		77
APPENDIX I: The Questionnaire		86
APPENDIX II: Sample of Box Plots for Selected Items		91
APPENDIX III: Results for the Test of Multicollinearity		93
APPENDIX IV: Scree Plot		95
APPENDIX IV: REGRESSION WEIGHTS AND P-VALUE IN SEM		96

LIST OF TABLES

<u>Table No.</u>		<u>Page No.</u>
Table 3.1	Sources of the Measurement used for the Study Variables	38
Table 3.2	Item Set to Measure Self-efficacy	39
Table 3.3	Item Set to Measure Perceived Usefulness	39
Table 3.4	Item Set to Measure Perceived Ease of Use	40
Table 3.5	Item Set to Measure Attitude	41
Table 3.6	Item Set to Measure the Actual Use of LMS	42
Table 4.1	Normality Test	51
Table 4.2	The Demographic Profile of Respondents	53
Table 4.3	Reliability test for the main constructs in the study	56
Table 4.4	KMO and Bartlett's Test	57
Table 4.5	Rotated Component Matrix	58
Table 4.6	Assessment of Convergent Validity	61
Table 4.7	Assessment of Discriminant Validity	62
Table 4.8	Testing the hypotheses of the direct links between constructs	66
Table 4.9	Summary of the Hypotheses Testing	66

LIST OF FIGURES

<u>Figure No.</u>		<u>Page No.</u>
Figure 1.1	LMS Usage Among the Malaysian Universities	5
Figure 2.1	Technology Acceptance Model (TAM)	23
Figure 2.2	The Social Cognitive Theory (SCT)	27
Figure 2.3	The Proposed Theoretical Framework	28
Figure 4.1	Confirmatory Factor Analysis	60
Figure 4.2	The Structural Model	63

LIST OF ABBREVIATIONS

LMS	Learning Management System
TAM	Technology Acceptance Model
TPB	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
SCT	Social Cognitive Theory
SE	Self-efficacy
PU	Perceived Usefulness
PEOU	Perceived Ease of Use
ATTI	Attitude
AU	Actual Use
SPSS	Statistical Package for Social Scientists
EFA	Exploratory Factor Analysis
KMO	Kaiser-Meyer-Olkin Measure
CFA	Confirmatory Factor Analysis
SEM	Structural Equation Modeling

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

No one can deny the important role of technology globally, due to the swift evolution of technology in every aspect of people's lifestyle in the present day. Modern technological tools have come to control many of our daily activities. They are influencing people's performance and behaviour both positively and negatively, and are reflected in our personalities and way of life. Nowadays, the advanced methods in the educational field can be clearly noticed and are considered one of the most vital areas that have built a real revolution, by adopting and implementing the innovative technological methods. Using technology in the field of education has made a quantum leap of continuous advancement and has recently reached the most elevated level.

The development in the online education system has been realised in the last two decades after the great efforts made on studies, research and experiments by using web-technology and implementing it in the educational systems around the world. The output of these studies was the emergence of the online education system to help both academics and students and to advance the educational process (Stewart, 2012). Undoubtedly, this development can be observed in the field of education through the shift from using chalk and blackboard in the past, to the use of marker-pen and whiteboard. This is similarly seen in the transition from using the traditional projector to using LCD's projectors, the switch from using desktop computers to using laptops

and tablet devices and from utilising the hard copies of textbooks to e-books. Finally, the evolution of the interaction between the lecturers and their students has turned from traditional classrooms to virtual classrooms (Snyder, 2007).

Therefore, educational institutions around the world are increasingly adopting innovative learning environments by utilising new online systems and implementing modern educational methods. This is intended to facilitate the learning process for their current and prospective students. Recently, different educational means, such as the learning management system and distance education, have been developed by system providers or the developers' team in the universities. The use of these tools by most of the universities around the world drove to the expansion in the number of new student enrollments in these universities and the prospective students. These new tools helped to increase awareness among students to continue their education (Groff, 2013).

At the beginning of the twenty-first century, many educational institutions started using the learning management system (LMS) as one of the innovative educational methods. The LMS has contributed to enhancing and improving the educational system by taking advantage of internet networks as an assistant method. The aim of embracing the use of LMS by the educational institutions is to offer new educational patterns that are easier, superior and faster for lecturers and students. The advancement in the computerisation of the educational system has increased over the past two decades (Daniels, 2017).

Based on the study of Higgins et al. (2012), the history of the online system in the education sector is linked to the growth of the Internet and the evolution of the

educational technologies used in various universities around the globe, where these online methods proved to have positive benefits associated with the educational outcome. Thus, the use of the online system has a vital role in facilitating the users' activities in all aspects of life. Indeed, the education field has benefited from the online system because of the early adoption of technological methods. Moreover, the dynamism of the online system can be considered a success factor to promote educational institutions across the globe.

Another advantage of adopting the online system, which is used by universities and colleges around the world, to advertise themselves in a new style and standing against their competitors. Many universities have invested a lot of money to incorporate online tools into their systems to help potential students to distinguish and select them from among the operational education institutions in their countries or around the world. Also, both lecturers and students may gain benefits from the usage of these new technological systems and educational schemes, which can make teaching and learning easier, more enjoyable and motivational. by employing the various modern pedagogy models in the educational system.

1.2 PROBLEM STATEMENT

In today's world, the Internet and online services are becoming an essential factor that people are dealing with throughout their daily actions. Consequently, many educational institutions, business organisations and government sectors around the world have realised the key role of computerising their systems to enhance the availability of their services to the public in easy ways and appropriate modes.

According to Coghlan (1993), resistance is a natural response to change, because the respondents feel the change often involves moving from the known to the unknown. Hence, the nature of human beings tends to resist change to everything new presented to them and prefers the conventional ways, since they consider them easy to implement and do not require more effort. As a result, the online systems provided by the educational institutions to their students have been met with some issues in the initial stages. This is due in part to some lecturers and academic staff who feel these systems and services are unfamiliar to them and needed training courses and qualification to be able to deal with the computer system.

On the other side, university students needed user knowledge about the system and Internet connection to take advantage of the services made available by modern technology methods. For example, in the past, the registration process was done manually by an institutions' staff and it required the students to wait in long queues for a long time. Nowadays, this process is done by clicking some buttons anytime anywhere around the world through access to the Internet. As time passed by, this problem started to fade because of the increased level of adopting technology in higher education institutions.

According to Kim (2015), adopting online systems in higher education institutions and utilising the learning management system (LMS) is considered one of the essential success elements in the education sector in the present time. These online learning services classified and served the users into two groups, lecturers as senders and students as receivers. Here comes the importance of the online services which are

regarded as the solution to shorten the time and effort, and help to integrate, evaluate and automate the academic activities.

For that reason, this study seeks to check the impact of using the learning management system (LMS) as one of the modern online education methods by the students attending universities in Malaysia and examine its relation to facilitating the student-learning process. According to Embi (2011) and Hock et al. (2015), there are three types of online LMS used by the public and private Malaysian higher education institutions. These are Open-source LMS used by 57.7% of the institutions, Commercial LMS used by 34.6% of the institutes and In-House Develop LMS 15.4% of the educational institutions.

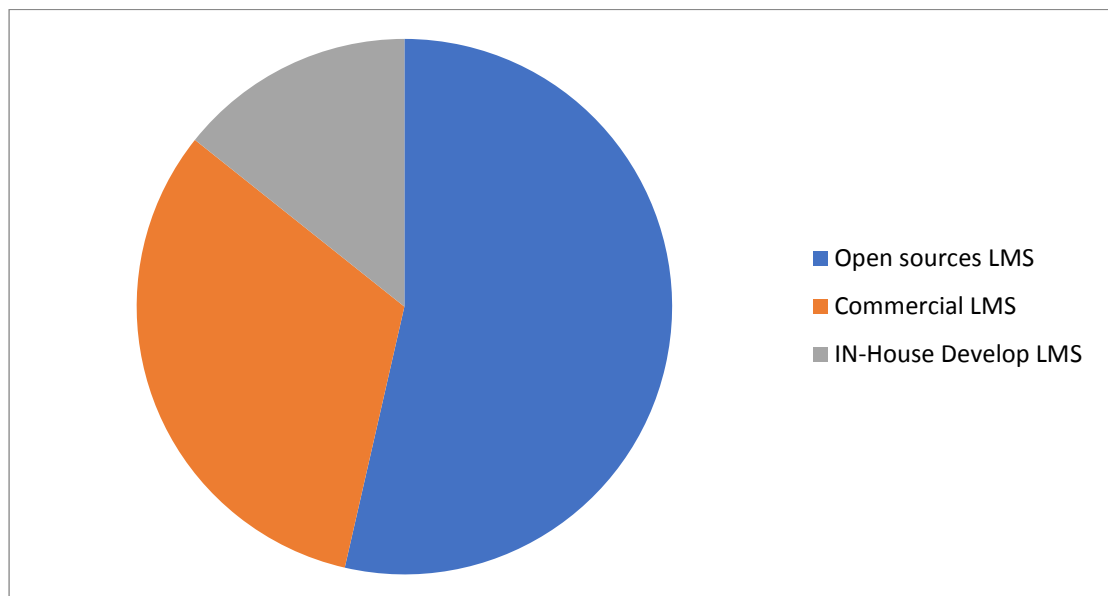


Figure 1.1: (LMS) Usage among the Malaysian Universities

Due to the availability of the technology infrastructure and the rapid development of Information and Communications Technology (ICT) tools in Malaysia, the adoption

of the online system among the educational institutions has grown significantly. Additionally, the online system and LMS has become a necessity for all higher education institutions in Malaysia to satisfy their current students and attract new students. Furthermore, the Malaysian Ministry of Higher Education has made important attempts to develop the national e-Learning policy, to strengthen the educational system and to align their system with the international universities systems.

To sum up, the findings of this study may help the Malaysian planners in the Higher Education Ministry to incorporate LMS and the online education methods into their future plans. Benefits of the online system can be seen in the results of students' use of the learning management system (LMS) as a learning helper tool to interact with their studies' syllabus, assignments, course materials, online exams, email, announcements, calendar and the acceptance rate of these services by the higher education students in Malaysia.

1.3 RESEARCH OBJECTIVES

To progress, scientific research depends on a wide scope of diversely qualified people day in and day out. Every day numerous new technological innovations that stem from continuous research and studies are being developed by scholars and who are interested in providing useful gadgets to all people and who want to keep abreast of technological development. There are limited studies that examine the use of the online system in the Malaysian higher education institutions. Embi (2011)

investigated the use of e-Learning in Malaysian higher education institutions and explained its situation, tendency, and challenges.

Embi et al. (2012) reviewed the use of (LMS) in the Malaysian universities by lecturers. Hock et al. (2015) compared the usability and users' acceptance of the open sources learning management system. Juhary (2014) examined the perceived usefulness and ease of use of the learning management system as a learning tool. Moses et al. (2014) studied the role of the moderator to improve students' performance. Baleghi-Zadeh et al. (2014) checked the Learning Management System utilisation among Malaysian higher education students.

All these studies are praised as the key role to investigate and evaluate the use of the online system in enhancing the education sector in Malaysia. So, this study is sought to continue the research path to get additional information and serve all those interested to obtain more knowledge. Therefore, the main objective of this study is to examine the use of the learning management system (LMS) by students' and their acceptance level of these services in the Malaysian higher education institutions by examining the effect of self-efficacy, perceived usefulness, perceived ease of use and attitude and their relations with the use of LMS in the education process.

1.3.1 General Objective of the Study

This study seeks to investigate the consequence of self-efficacy, perceived usefulness, perceived ease of use and attitude of students on the use of the learning management system (LMS) in the higher education sector in Malaysia.

1.3.2 Specific Objectives of the Study

1. To examine the relationship between self-efficacy and perceived usefulness of using LMS by students in Malaysian universities.
2. To examine the relationship between self-efficacy and perceived ease of use of LMS by students in Malaysian universities.
3. To examine the effect of perceived usefulness on attitude toward using LMS by students in Malaysian universities.
4. To examine the effect of perceived ease of use on attitude toward using LMS by students in Malaysian universities.
5. To examine the effect of perceived ease of use on perceived usefulness of using LMS by students in Malaysian universities.
6. To examine the effect of attitude on the actual use of LMS by students in Malaysian universities.

1.4 RESEARCH QUESTIONS

Grounded on the research objectives, this study seeks to answer the following questions:

1. Does self-efficacy influence perceived usefulness of LMS to students in Malaysian universities?
2. Does self-efficacy influence perceived ease of using LMS by students in Malaysian universities?
3. What is the impact of perceived usefulness on the attitude toward using LMS by students in Malaysian universities?

4. What is the impact of perceived ease of use on the attitude toward using LMS by students in Malaysian universities?
5. Does perceived ease of use influence perceived usefulness of using LMS by students in Malaysian universities?
6. Does attitude impact the actual use of LMS by students in Malaysian universities?

1.5 SIGNIFICANCE OF THE STUDY

Indeed, many things change over time. The modern technologies that are available to people have changed and facilitated many tasks and improved people's lifestyles. Recently, the University of Cambridge announced that it is seriously considering canceling written exams and relying only on e-exams due to poor student handwriting (Education News, 2017, September 9, www.independent.co.uk). This is a strong example of using technology for students' achievement in western countries.

Interestingly, many of the influential people around the world are motivating people to pay attention to technology and learn how to use it, regardless of the learner's age, gender and place. This is because if people can access the internet and use it effectively, it may become one of the financial sources that help them in continuing their life. As an example, in October 2017 the Apple co-founder Mr. Steve Wozniak had launched "WOZ U" as an online Tech Education University, and being a new digital education institute, designed for those are interested in online education and technology industries (Tech News, 2017, October 13, www.engadget.com).

Through this study, the researcher intends to examine the use of LMS by students in the Malaysian universities and to investigate students' acceptance rate of utilising these services through applying a modified model of Technology Acceptance Model (TAM). This study purposes to check the role of applied new technologies on the educational field and provide educational institutions around the world with the findings, which may help them to adopt different online educational technologies. The study predicts that applying the online system in the education sector will help the educational institutions to attract new students, enhance the current students' academic level and facilitate their learning process.

In addition, this study foretells that implementing the LMS in the Malaysian higher education institutions will help them to raise their reputation and boost their global ranking, which is likely to attract new international students. Moreover, this study may help the Malaysian policymakers to be more attentive to the developing needs of the higher education system and give it more consideration in their future plans. Based on the above expectations, this study has advantages for both the educational institutions and the students.

1.6 SCOPE OF THE STUDY

This section of the study consists of two parts, the geographical scope shows the study area and the conceptual scope presents the target of this study, through examining the study factors and their impact on the use of LMS.